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Bridging language and medical education: Integrating Chinese and Western perspectives for high-quality healthcare training

Yu Pan 

Wenzhou Medical University, Wenzhou, Zhejiang Province, China

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Abstract

For exploring the integration of language and high-quality medical education with Chinese and Western medical perspectives in support of China's 14th Five-Year Plan for educational reform, this research assesses the potential and challenges of integrative medical education and examines the impact of incorporating a language education intervention through corpus-assisted approach on enhancing students' critical engagement with medical discourses and their communicative competencies in simulated clinical settings. Adopting a conceptual framework that places Critical Discourse Analysis (CDA) within the constructivist framework and using a mixed method design that combines questionnaire, focused group interviews, language intervention experiments and patient care simulation evaluations, this study reveals how a language education trial can significantly contribute to students' understanding of medical discourse, cultivation of cultural awareness, and enhancement in communication skills. The findings demonstrate the bridging of language education and medical training and propose an integrative medical educational approach for competent healthcare provision in an increasingly interconnected world.

Keywords medical education; critical discourse analysis; language education intervention; communication skills

1. Introduction

The Central Committee of the Communist Party of China's 14th Five-Year Plan for National Economic and Social Development underscores the imperative for high-quality education that fortifies a strategic developmental trajectory towards 2035, particularly within the healthcare sector. In this context, the confluence of Chinese and Western medical teachings is instrumental in augmenting medical education and the comprehensive grooming of healthcare practitioners (Peng & Gong, 2022). In the intersection of diverse healing paradigms, medical traditions embody the distinct bodies of knowledge, practices, and philosophies inherent to cultural or historical health systems, exemplified by the holistic approaches of Chinese medicine juxtaposed with the empirically-driven methods of Western medicine. Utilizing a mixed method approach and multiple sources of quantitative and qualitative data including questionnaire, focused group interviews, language education intervention experiments and simulated patient care practice performance, the current study also pays particular attention towards the effectiveness of the implementation of the *MediSync Corpus*, a corpus-assisted learning tool drawing from *New York Times*, in fostering students' CDA skills for critical analysis and evaluation towards the representation of medical treatments in media narratives through pre- and post-

intervention assessments along with patient care simulations.

The current study explores the pedagogical implications of language education in integrative medical education by emphasizing the importance of students' critical engagement with medical texts from different cultures for the enhancement of communicative skills and cultural literacy, which are essential for modern integrative medicine practice. The study, thus, reconciles diverse medical traditions and perspectives within the educational sphere, responding to the globalization of healthcare and the need for culturally competent practitioners proficient in multiple medical systems, highlighting how language education can contribute to the development of effective pedagogical approaches and research in this field.

2. Conceptualizing CDA and Integrative Medical Education

Critical Discourse Analysis (CDA), also known as critical discourse studies (CDS), is a multidisciplinary approach that focuses on examining how power abuse, such as sexism, racism, and social inequality, is reproduced through language and communication. It also explores the resistance against such domination. CDA does not adhere to a specific method but utilizes relevant methods from the humanities and social sciences to study

significant social problems. Unlike other approaches, the CDA framework not only connects discourse structures to social structures but also establishes a sociocognitive interface that links mental representations of communication and social situations with the cognitive structures underlying discourse. Power is conceptualized as control, encompassing the manipulation of context, text, or talk, and indirectly influencing individuals' minds (Van Dijk, 2015b). Critical social analysis, rooted in the tradition of Marx, recognizes social reality as conceptually mediated, meaning that social events and practices are intertwined with representations and interpretations. This material-semiotic perspective emphasizes the dialectical relationship between the material and the semiotic aspects of social realities, necessitating an interdisciplinary approach that brings together disciplines focused on both material and semiotic facets. CDA contributes a semiotic emphasis and acts as a point of entry into trans-disciplinary critical social analysis (Fairclough, 2012).

The concept of integrative medicine, which melds traditional Chinese medicine with Western medical science, stands at the forefront of modern medical educational dialogue and serves as a cornerstone of curricular enhancement (Liu et al., 2020; Wang & Zhang, 2017). The complexity of integrating Chinese and Western medical traditions and views within educational settings is echoed by a trend gaining momentum across academic institutions to achieve a balanced curriculum (Dusek, 2010; Fu et al., 2021; Ke & Hao, 2003; Yin, 2021; Zhang et al., 2016).

The integration of Chinese and Western medical traditions in medical education offers numerous benefits including holistic understanding of healthcare, exposure to a range of complementary therapies such as acupuncture, herbal medicine, and mind-body practices, expanding their treatment options and potentially improving patient outcomes, promotion of interprofessional collaboration into the curriculum, allowing students gain a better understanding of other professions' roles, leading to improved collaborative patient advocacy and comprehensive healthcare (Templeman et al., 2016). Integrating Chinese and Western medical traditions also encourages interdisciplinary research collaboration and innovation, leading to new insights and approaches in healthcare (Scheid, 2002) and personally-tailored complementary medical strategies as part of an optimized overall health care management (Jeitler et al., 2023).

3. Review of Empirical Studies of CDA with Language and Medical Education

Past researches concerning CDA with language and medical education have been conducted in various contexts where linguistic competency is receiving gradual importance in medical training and health care industries. Chitindingu et al. (2014) revealed an educational lag in South Africa, reflecting a broader global challenge of aligning curricular innovations with societal reliance on

traditional medicine. This accentuates the necessity for culturally sensitive curricula and language education strategies (Al Shamsi, 2020; Chen & Lu, 2006; Mary & Nassima, 2018), which address the language barriers impacting patient satisfaction and safety. The importance of considering professional identity alongside competency development in medical training (Jarvis-Selinger et al., 2012) and critical examinations towards linguistic and discursive practices (Parish, Dogra, & George, 2022), have inspired the research into the crucial necessity of moving beyond teaching language competencies in isolation and instead incorporating innovative language education as an approach to understand the social and cultural dimensions of language use in healthcare settings (Jarvis-Selinger et al., 2012). Study into large language models (LLMs) (Ahn, 2023) has the potential to significantly impact medical education by recognizing the close relationship between linguistic readiness in retrieve information retrieving, essay and articles generation, reasoning in a chain of thought, and human-like speech production while limitations such as hallucination and inconsistency are noted (e.g., Bell et al., 2002; Black & Slavich, 2016; Johns Hopkins University, 2022; Kemppainen et al., 2018; Kuo, 2015; Maizes, Rakel, & Niemiec, 2009; Pike et al., 2014) (as cited in Ahn, 2023), emphasizing the urgency in medical practitioners' language competency training to tackle the above problems.

CDA emerges as a pivotal tool for cultivating students' analytical capabilities within medical discourse, enhancing their understanding of socio-political influences on medical practices (David et al., 2005; Fairclough, 2013; Gwen & David, 2018; Van Dijk, 2015a). CDA exposes underlying biases and power dynamics within medical education, such as the insufficient coverage of cultural diversity topics in curricula and guidelines. Studies (e.g., Jarvis-Selinger et al., 2012; Parish, Dogra, & George, 2022) have also emphasized the incorporation of CDA into medical education to facilitate the understanding and promotion of cultural diversity. Addressing these gaps through CDA allows for the development of culturally sensitive healthcare professionals who can better understand and meet the needs of diverse patient populations, reducing health disparities (Parish, Dogra, & George, 2022).

Furthermore, the significance of communication skills in clinical effectiveness and patient-centered care is corroborated by studies emphasizing linguistic competencies and narrative medicine as pedagogical tools to foster empathy and culturally sensitive treatment plans (Albert et al., 2008; Eisele et al., 2019; Kim & Park, 2019; Kragel and Beyer, 2021). The call for bilingualism in medical education to manage cross-cultural healthcare scenarios (Ehi, 2006; Spitzer, 2016) is also echoed in recent research advocating for the integration of language and cultural awareness into medical training (Liang, 2023; Ortega & Prada, 2020).

Work on integrative healthcare and medical education in relation to language analysis in particular to CDA has generated and conceptualized the purposes and social function of interpreting ideological implications of language in documents and policies (e.g., Barreto, 2018; Martimianakis & Hafferty, 2013; Myers et al., 2022; Pas-

Lourido & Kuisma, 2013). However, despite the clear influence of language on patient interaction and the delivery of complex medical concepts, there remains a gap in research on specific curricular innovations that employ language education strategies to effectively combine Chinese and Western medical teachings and viewpoints (Thadphoothon, 2002; Zhao et al., 2023). The current research calls for a structured educational framework that harmonizes CDA with language strategies to meet the demands of a globalized healthcare system, an endeavor that extends beyond the classroom to impact the future of healthcare delivery. By incorporating CDA, educators can help students develop critical language awareness and navigate the complexities of communication in the medical field.

The theoretical support for curricular innovations in the realm of bridging language and medical education, illuminated by Chinese and Western medical perspectives, is deeply rooted in the principles of constructivist learning theories. Vygotsky's seminal work on constructivism posits that knowledge is not passively received but actively constructed through the learner's engagement with their environment and their experiences within it (Vygotsky, 1978). Nevertheless, to effectively prepare medical students for the complexities of diverse medical systems and cultural expectations, deeper attention to linguistic and cultural competencies is needed. In the current study, I argue for a conceptual framework that proposes the integration of CDA within the constructivist framework to bridge language education and medical training that enhance students' linguistic and cultural competencies (Figure 1). Vygotsky's constructivist framework emphasizes active knowledge construction through learner engagement, while CDA offers a research perspective and methodology to critically examine discourses and power dynamics in medical education (Fairclough, 2015). By integrating CDA with constructivism, students can critically analyze and challenge dominant discourses, leading to a nuanced understanding of language use in medical contexts (Rogers & Potter, 2011) and the skills to navigate linguistic and cultural boundaries, enabling effective communication and culturally competent care (van Dijk, 2015). The development of linguistic coherence and cultural sensitivity embedded in the integration of CDA within the constructivist framework provides a comprehensive approach to language education interventions, facilitating the development of students' linguistic and cultural competencies necessary for effective medical practice across diverse traditions.

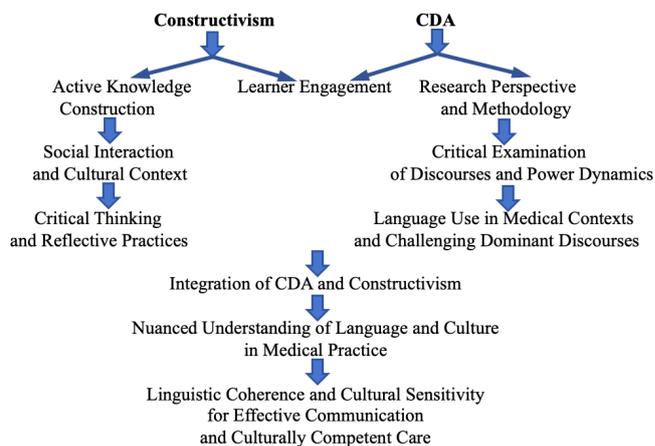


Figure 1. The Conceptual Framework

4. Methods

In preparation for the current study, a preliminary investigation was conducted, aiming to assess the educational landscape of integrative medicine within the institution where this study is practiced. The insights of it were derived from a combination of methods including a comprehensive literature review of historical trends, analysis of educational policy documents, and a survey distributed to faculty and students to gauge perceptions of integrative medical education. The findings depict an educational environment where integrative medicine, the confluence of traditional Chinese medicine (TCM) and Western medicine, has been gaining momentum, reflecting the national trend since the 1950s. Insights from the study indicate a strong propensity within the faculty and student body towards embracing integrative medicine's comprehensive healthcare approach, which aligns with the positive attitudes seen in the broader medical community, as reported by the 2004 national survey endorsed by the SATCM (Chen & Lu, 2006).

Despite the enthusiasm, the preliminary research has also highlighted several challenges that need to be addressed. Issues such as the need for more robust government backing, increased funding, and the development of human resources were noted, along with a call for more rigorous academic collaboration and exchange. These challenges form the core focus areas that the current study seeks to address, with the goal of establishing ample experiences in language education for a future integrative medical education curriculum that not only combines Chinese and Western medical traditions and perspectives but also includes innovative language education strategies to facilitate high-quality healthcare training.

4.1. Research Questions

1. What are the current challenges and benefits of conducting integrative medical education?
2. How does an educational intervention focused on CDA and linguistic representation influence students' abilities to understand and critically evaluate the portrayal of traditional and Western medical treatments in news media?

3. In what ways does the incorporation of language education for an integrative medicine curriculum enhance cultural competency and communication skills during patient care simulations for medical students?

4.2. Participants and Data Collection

The current study involved 120 second-year clinical medicine students and 20 medical faculty members, selected to represent a broad spectrum of opinions on the integrative medical education. The participant pool was chosen to include stakeholders with diverse perspectives, including students from various medical disciplines, faculty with a wide range of academic and clinical experience, and practitioners with different specializations and years of professional experience. This deliberate selection aimed to capture a comprehensive and multidimensional understanding of the integration, facilitating the collection of rich, qualitative data to inform the robustness and credibility of the research findings (Table 1).

Data was collected using a structured questionnaire called Integration of Chinese Medicine Tradition in Medical Education Questionnaire (Appendix 1) with 15 Likert scale items and five open-ended questions, assessing attitudes, perceived efficacy, and receptiveness to the integrative approach in clinical practice and education. Distributed electronically through WeChat groups and academic mailing lists, the questionnaire reached participants efficiently. Additionally, focused group interviews with 7 students and 20 medical faculty members allocated in four groups were conducted to provide in-depth insights. These interviews, structured around pre-determined open-ended questions (Appendix 2), were conducted in environments conducive to open discussion and were audio-recorded with consent.

For assessing the effectiveness of language education intervention, the investigation included the above mentioned 120 second-year clinical medicine students who were from two administrative classes, thus automatically formed two distinct groups of students: 60 taught by a traditional medical curriculum and 60 taught by an innovative curriculum enhanced by language

education strategies as the corpus-assisted learning experiment. Additionally, for patient care simulation exercises, international students from the university where the author worked and collected the data assumed the roles of patients and Western community members, while other students, 30 each chosen randomly from experimental and control groups respectively, acted as doctors and cultural mediators. This diverse assembly of participants was instrumental in evaluating the impact of language education in medical contexts, particularly regarding the integration of traditional and Western medical practices.

To further determine and explore the effect of language education intervention on medical practice and outcomes, data was collected through a multi-faceted approach for the experiment. Initially, pre- and post-tests featuring essay questions assessed students' understanding of media discourse's influence on patient care, with a focus on cultural sensitivity and evidence-based practice (Appendix 3). The post-test question, which is a continuation of the same scenario, is designed to assess how much the students' understanding and communication strategies have evolved after the language education intervention, particularly their ability to apply CDA to real-life patient interactions, to test students' understanding and attitudes towards *How does a CDA initiated learning on linguistic representation influence students' abilities to understand and critically evaluate the portrayal of traditional and Western medical treatments in news media?*

For practical application, patient care simulations were conducted to disseminate and analyze the differences and similarities between Chinese and Western medical diagnostics and treatments. A scoring system (Appendix 4) was devised for international students, who were blind to the educational approach differences, to evaluate the performance of their peers. This blinding was crucial to maintain objectivity in assessing the effectiveness of the integrative curriculum and depicting the influence of language and curricular innovations mainly contributed by the corpus-assisted learning experiment in the current study on healthcare outcomes.

Table 1. Demographic information of focused group interviewees

Group	Role	No. of Participants	Gender Distribution	Major/Credential Background	Age Range	Years of Experience with Chinese and Western medicine tradition in an integrated learning and teaching
1	Students	7	4 Female, 3 Male	Clinical Medicine (3), Nursing (2), General Medicine (1), Psychological Medicine (1)	18-26	1-3
2	Teaching Faculty	6	3 Female, 3 Male	PhD in Medicine related Education (3), MD with Specialization in Traditional Chinese Medicine (2), PhD in Pharmacology (1)	35-50	2-5
3	Practitioners	8	3 Female, 5 Male	General Practice (3), Traditional Chinese Medicine (2), Pharmacology (1), Oncology (1), Pediatrics (1)	28-55	3-12
4	Mixed Group	6	3 Female, 3 Male	Health Policy Expert (1), Medical Ethicist (1), Clinical Researcher (2), Integrative Medicine Advocate (2)	25-50	2-7

4.3. Data Analysis

The questionnaire data were processed to analyze quantitative responses from the 15 Likert items by SPSS, providing mean scores (M) and standard deviations (SD)

for both groups—students from a traditional medical curriculum and those from the integrative medical education realized by the language education intervention, the corpus-assisted learning experiment. To examine the perceptual differences between students and faculty

members, independent sample *t*-tests were carried out, revealing significant disparities in several items. These statistical tests were chosen as the student and faculty responses represent two independent groups. Cohen's *d* was then computed for the items with significant *p*-values to determine the effect sizes, which offered a deeper understanding of the magnitude of the differences between the two groups. The calculation of effect sizes allowed for the evaluation of the practical significance of the perceptual gaps identified, particularly in the areas of ethics and holistic understanding in medical education. Thematic analysis, utilizing a systematic framework, was applied to qualitative data from the open-ended questions and focused group interview transcripts to identify dominant themes. The interview transcripts were meticulously coded and analyzed with NVivo 12 software to uncover recurring patterns and extract salient themes related to combining Chinese and Western medical traditions and perspectives in education.

Statistical analysis with SPSS were conducted to gauge the pre- and post-test results from the language education intervention, which surrounded a short essay question. Effect sizes were computed to determine the intervention's practical implications on the students' comprehension and application of the linguistic significance in representing Chinese and Western medical views in education. Quantitative analysis was also practiced to compare language education intervention outcomes between the two distinct groups. These statistical tests were adjusted for confounding variables to ascertain the effect of the curriculum differences with precision.

As rigorous and systematic as above described, the analysis was designed to ensure that the findings were not only statistically robust but also provided a nuanced depiction of the practical implications of integrating of Chinese and Western medical conventions related perspectives into the bridging of language and medical education. The thoroughness of these methods aimed to guarantee that the study's conclusions were reliable, replicable, and meaningful to stakeholders in the educational and healthcare training communities.

4.4. Language Education Intervention: The Corpus-Assisted Learning Experiment

Upon experiences, and mostly the challenges and benefits associated with integrating Chinese and Western medical traditions and views in clinical medicine education from questionnaire and focused group study, an innovative teaching experiment utilizing a corpus-assisted learning approach was gradually developed by the author. Central to this educational endeavor is the *MediSync Corpus*, a carefully curated linguistic corpus composed of 40 select news reports from *New York Times*, extending over a decade from 2013 to 2023. Each carefully chosen report averages around 300 words, culminating in a corpus of approximately 12,000 words that showcase a diverse spectrum of journalistic content. This includes editorials, articles, interviews, and discussions on health policy, providing a comprehensive view of the interplay between medical practices from varying traditions. *New York Times* was chosen for its journalistic rigor, international coverage, and a dedicated health and science section that ensures a balanced representation of both Chinese and Western medical treatments. Its extensive digital archive presents a valuable resource for analyzing how different medical approaches are framed and discussed within mainstream Western media, potentially revealing the linguistic nuances and biases that shape public discourse.

A group of 60 sophomore-year clinical medicine students who were participants in the questionnaire study forms the experimental group for this language education intervention experiment. They are engaged with the *MediSync Corpus* over a 12-week period, committing four hours each week. The corpus-assisted language education intervention is a structured 12-week program that unfolds in phases. Initially, students received training on corpus analysis tools, mainly AntConc, to conduct keyword searches and examine concordance lines (as in Table 2). As they became proficient, the focus shifted to identifying collocations and discourse patterns relevant to CDA, and thus putting more proper use of language and ideas into practice (e.g., patient care practices). Students engaged in tasks that require them to extract and analyze key linguistic items, such as terminology differences between Chinese and Western medicine and how these reflect underlying cultural perspectives and ideological purposes.

Table 2. Comparative Frequency of Medical Keywords in the *MediSync Corpus*

Keyword	Concordance Line Excerpt	Frequency
<i>Acupuncture</i>	"... <i>acupuncture</i> showed efficacy in chronic pain relief..."	25
<i>Surgery</i>	" <i>Surgery</i> remains the primary intervention for acute cases..."	30
<i>Herbal</i>	" <i>Herbal</i> remedies are often seen as complementary to pharmaceuticals..."	15
<i>Antibiotics</i>	" <i>Antibiotics</i> are prescribed for bacterial, not viral infections..."	20
<i>Qi</i>	" <i>Qi</i> , a central concept in Chinese medicine, is rarely acknowledged in Western treatments..."	8
<i>Chemotherapy</i>	" <i>Chemotherapy</i> , despite its side effects, is a standard cancer treatment..."	12
<i>Yin and Yang</i>	"The balance of <i>Yin and Yang</i> can influence treatment outcomes..."	10
<i>Immunotherapy</i>	" <i>Immunotherapy</i> represents a breakthrough in precision medicine..."	14

Table 2 is generated through AntConc to perform keyword searches and extract concordance lines from the *MediSync Corpus*. AntConc scans the corpus for the predefined medical keywords relevant to both Chinese and

Western medical practices. It then records the context in which these keywords appear, creating concordance lines that show a snippet of text surrounding each occurrence. The frequency column is populated by counting how many

times each keyword appears within the corpus. This methodological approach allows for both quantitative and qualitative examination of the language used in the medical reports, providing insights into the integration of different medical traditions and perspectives and the cultural implications embedded within the language. The followings are several typical examples for conducting CDA as language education intervention practice. The first example is presented along with steps indicating how the language education intervention scheme was practiced as a pedagogical approach.

Example 1

“In a groundbreaking medical trial, the integration of acupuncture alongside chemotherapy has been shown to reduce patient recovery times. While chemotherapy attacks the cancer cells, acupuncture is credited with enhancing the body’s Qi, promoting balance and alleviating the side effects of the Western treatment method. This holistic approach, fusing Yin and Yang principles with advanced biomedical therapies, illustrates a shift in the medical paradigm.”

As for the key steps of guided CDA analysis, in the first phase of analysis, students focused on **Identifying Linguistic Features and Keywords**, where they must locate key terms such as “acupuncture,” “chemotherapy,” “Qi,” “Yin and Yang,” tracking their frequency and contextual usage within the corpus. Moving to the second step, **Analyzing the Representation of Concepts**, the task was to dissect how Western and Chinese medical concepts are represented, understanding the implications of their linguistic framing and the ways in which traditional Chinese medicine might be presented as a complement or challenge to Western practices. The third critical step, **Exploring Underlying Ideologies and Cultural Perspectives**, involved a deeper discussion on how language reflects the evolving ideology towards a

more integrative medical system that respects both Chinese and Western methodologies, indicating a shift towards appreciating holistic well-being alongside traditional biomedical approaches. Finally, in **Reflecting on Societal Implications**, students deliberated on how these integrative practices could influence patient care and medical education, contemplating the role of language in perpetuating or challenging cultural biases in treatment paradigms.

In this corpus-assisted learning experiment, students employed CDA to investigate the representation of Chinese and Western medical practices within a corpus of *New York Times* health reports, aiming to discern cultural biases and construct a more integrative approach to clinical medicine learning (Martin, 2004). By examining the frequency and context of Eastern and Western medical terms and their juxtaposition, such as the portrayal of “acupuncture” versus “surgery”, students critically analyzed how language shapes the perceived hierarchy and legitimacy of treatments, which in turn might influence healthcare choices and patient expectations, for enhancing students’ analytical skills and fostering an appreciation for the nuanced interplay of language, culture, and ideology, ultimately promoting culturally competent medical practice.

Several examples (as in Table 3) combining corpus analysis results with concordance lines, key words, CDA, and the implications of language use as the followings are good demonstrations of how CDA can be used to uncover biases in medical treatment narratives, thus offering a framework for students to dissect medical narratives through CDA, enabling them to understand the impact of linguistic choices on societal healthcare perceptions and behaviors, and to unearth biases that influence patient decisions, policy-making, and the cultural embrace of varied medical traditions and practices.

Table 3. Examples of Corpus Analysis Results

Sample	Concordance Lines & Key Words	CDA	Implications of Language Use
1	“ancient herbal medicine”, “alternative acupuncture”, “complementary techniques” vs. “advanced immunotherapy”, “cutting-edge surgery”, “standard treatment”	The use of terms conveys a hierarchy of legitimacy and modernity, with Western medicine positioned as superior.	Such language could influence public and professional trust in different medical systems, potentially affecting healthcare choices and policy.
2	“patient was given acupuncture”, “patient underwent herbal treatment” vs. “patient chose surgery”, “patient opted for chemotherapy”	Depictions of agency differ, with traditional treatments often presented passively and Western treatments actively.	This framing may affect perceptions of autonomy and control within healthcare, impacting patient empowerment and consent.
3	“surgery was successful”, “treatment was effective” vs. “patient responded well to acupuncture”, “patient’s condition improved with herbs”	Success is attributed to the treatment in Western medicine and to the patient’s response or external factors in traditional medicine.	This could shape expectations of treatment outcomes and trust in the efficacy of different medical approaches.
4	“acupuncture is cost-effective”, “herbal remedies are affordable” vs. “immunotherapy’s high cost due to research”, “surgery’s expense is justified”	Economic framing positions traditional medicine as a cost-saving option, while Western medicine is linked to innovation and research costs.	The economic narrative may influence how treatments are valued and chosen, potentially affecting access to and perceptions of different medical options.
5	“patient’s lifestyle complements acupuncture”, “herbal remedies support well-being” vs. “immunotherapy targets disease”, “surgery removes the problem”	The language suggests that traditional methods enhance general health, whereas Western methods are framed as direct solutions to health issues.	This dichotomy could reinforce the idea that traditional medicine is preventative or supplementary, while Western medicine is curative, impacting the perceived purpose and efficacy of treatments.

5. Results

5.1. Questionnaire Results

The comparative analysis of perceptions on integrative medical education explored in the questionnaire revealed significant disparities between students and faculty ($p < .05$). Noted that M represents mean scores, SD stands for standard deviation. If p is smaller than $.05$, the result is considered statistically significant. As for Cohen's d , which is a widely used effect size statistic that quantifies the differences between two groups in standard deviation units for determining the practical significance of the observed differences, $.2$ is 'small', $.5$ is 'medium', $.8$ is 'large', and 1.2 is 'very large'. A larger Cohen's d value indicates a larger effect size and a more substantial differences between groups.

Faculty members displayed more favorable perceptions compared to students, as indicated by Cohen's d effect sizes ranging from small to large. They also demonstrated a robust endorsement of a holistic medical approach, advocating for the relevance of traditional Chinese medicine in contemporary healthcare and emphasizing its ethical merits.

Notably, Items 8, 11, and 16 exhibited pronounced differences, highlighting varied challenges and advantages in the integration process. Specifically, in Item 8, faculty members had a mean score (M) of 4.573 with a standard deviation (SD) of $.497$, while students had a mean score of 4.134 with an SD of $.623$. The t -value for this item was -4.512 , indicating a significant difference between faculty and students ($p < .001$). The effect size, as measured by Cohen's d , was $.763$, reflecting a large difference between the two groups. For Item 11, faculty members had a mean score of 4.689 ($SD = .437$), whereas students had a mean score of 4.197 ($SD = .543$). The t -value was -5.147 , indicating a significant difference ($p < .001$). The Cohen's d effect size for this item was $.811$, indicating a large difference between faculty and students' perceptions. In Item 16, faculty members had a mean score of 4.512 ($SD = .549$), while students had a mean score of 3.921 ($SD = .691$). The t -value was -4.786 , indicating a significant difference ($p < .001$). The Cohen's d effect size for this item was $.774$, suggesting a large difference in perceptions

between faculty and students.

On the other hand, students expressed reservations, particularly regarding the practical application of traditional concepts in modern healthcare. This indicates a perceived gap between theory and practice. The differences in perception between faculty and students also underscore the need for strategies that effectively integrate medical traditions while aligning with both faculty and student perspectives.

Key items, such as Items 11 and 20, demonstrated major effect sizes, with Cohen's d values of $.811$ and $.746$, respectively. These findings emphasize the importance of addressing the perceptual contrast and implementing educational strategies that bridge the gap between theory and practice.

5.2. Focused group interview results

Utilizing NVivo 12 software for qualitative data analysis, a three-tiered coding hierarchy (Table 4) was established to delve into the integration of Chinese medical traditions and perspectives into medical education. Initial coding (Level 1) pinpointed discrete elements e.g. "Holistic patient care" and "Cultural sensitivity", which were then abstracted into Level 2 categories such as "Holistic Education Principles" and "Cultural and Ethical Integration". These categories coalesced into the overarching theme of "Educational Impact". "Curriculum Development Challenges" and "Evidence and Resource Gaps" encapsulated the obstacles in integration, contributing to the "Integration Difficulties" theme. On the practical front, "Innovative Teaching Strategies" and "Clinical Practice Enhancement" emerged as pivotal, forming the "Practical Application" theme, while "Case-Based Learning" underscored "Clinical Relevance". Lastly, themes of "Faculty Development" and "Student-Faculty Dynamics" were recognized under "Enhancement Strategies", highlighting organizational improvement and support as essential for optimizing the incorporation of Chinese and Western medical traditions and practices. This stratified analytical approach underscores the complexities and interconnectedness inherent in assimilating traditional medical knowledge into contemporary medical education.

Table 4. The 3-Level Coding Result of Questionnaire

Level 1: Initial Codes (Open Coding)	Level 2: Categories (Axial Coding)	Level 3: Themes (Selective Coding)
Holistic patient care	Holistic Education Principles	Educational Impact
Ethics and values in medicine		
Traditional medical knowledge		
Cultural sensitivity	Cultural and Ethical Integration	
Interprofessional learning		
Curriculum integration issues	Curriculum Development Challenges	Integration Difficulties
Resistance to change		
Lack of research evidence	Evidence and Resource Gaps	
Time constraints		
Teaching methods adaptation	Innovative Teaching Strategies	Practical Application
Hands-on clinical practice		
Application to patient care		
Preventive care approaches	Clinical Practice Enhancement	
Case study relevance	Case-Based Learning	Clinical Relevance
Patient outcome improvement		
Decision-making processes		
Clinical ethics		
Faculty training needs	Faculty Development	
Student engagement	Student-Faculty Dynamics	
Interactive learning		
Feedback mechanisms	Continuous Improvement Processes	Enhancement Strategies
Curriculum recommendations		
Resource allocation	Organizational Support	
Evidence-based integration		
Collaboration enhancement		

5.3. Experiment on language education intervention results

Effects of language education intervention through corpus-assisted CDA approach demonstrate a practical significance (Table 5). Intra-group analysis for the experimental group demonstrated a statistically significant increase in mean scores from the pre-test ($M = 72.5, SD = 8.5$) to the post-test ($M = 83.4, SD = 6.3$). Repeated measures ANOVA indicated a significant effect of the intervention ($F(1, 59) = 162.33, p < .001$), with a large effect size (Cohen's $d = 1.44$). The control group's intra-group analysis showed a minor improvement in mean scores from the pre-test ($M = 73.2, SD = 8.2$) to the post-test ($M = 74.1, SD = 8.0$). The change was not significant as per the repeated measures ANOVA ($F(1, 59) = 1.12, p = .293$), and the effect size was small (Cohen's $d = .11$). Inter-group comparisons were performed using independent samples t -tests. The pre-test scores were not significantly different between the experimental and control groups ($t(118) = -.54, p = .589$), implying equivalent baseline competencies. However, the post-test scores were significantly higher in the experimental group ($M = 83.4, S = 6.3$) compared to the control group ($M = 74.1, SD = 8.0$); the t -test confirmed this difference as significant ($t(118) = 9.76, p < .001$). The effect size for the post-test difference was substantial (Cohen's $d = 1.39$), indicating a strong impact of the intervention.

Table 5. Comprehensive Analysis of Language Education Intervention Impact

Group	Test Phase	M	SD	N	Cohen's d
Experimental	Pre-Test	72.5	8.5	60	-
	Post-Test	83.4	6.3		1.44
Control	Pre-Test	73.2	8.2	60	-
	Post-Test	74.1	8.0		.11

5.4. Medical simulation performance results

The statistical analysis presented in Table 6 clearly demonstrates a significant difference in patient care simulation performance between students who were taught using a traditional medical curriculum and those who experienced language education intervention through corpus-assisted CDA approach, an integrated curriculum that merges Chinese and Western medical traditions related views in the current study. The mean scores across all outcome measures are consistently higher for the integrated curriculum experimental group, denoting superior performance in each evaluated competency. The t -values, which reflect the ratio of the difference between the two group means relative to the variability of the scores, are quite large. This indicates that the differences in mean scores are not due to random chance but are likely the result of the pedagogical intervention under which the students were trained. The p -values, which denote the

probability that the observed differences are due to chance, are less than .001 for all measures. Cohen's *d* values are above .8, indicating that the differences in performance

between the two groups are not only statistically significant but also practically important.

Table 6. Comparative Analysis of Student Performances in Simulated Medical Settings with Traditional vs. Integrated Curricula

Outcome Measures	Control Group (n=30)	Experimental Group (n=30)	<i>t</i>	<i>p</i>	Cohen's <i>d</i>	Effect Size Interpretation
Medical Knowledge	M = 21.3 SD = 2.367	M = 25.5 SD = 2.134	8.21	< .001	1.84	Large
Communication Skills	M = 20.1 SD = 2.582	M = 24.8 SD = 2.217	7.56	< .001	1.70	
Cultural Sensitivity and Mediation	M = 19.7 SD = 2.458	M = 26.1 SD = 1.926	10.89	< .001	2.45	Very Large
Clinical Reasoning and Decision-Making	M = 20.4 SD = 2.345	M = 26.3 SD = 2.041	9.73	.001	2.18	
Professionalism and Ethical Considerations	M = 21.0 SD = 2.124	M = 25.6 SD = 2.308	8.43	.002	1.89	Large
Patient Engagement and Empathy	M = 20.8 SD = 2.679	M = 24.9 SD = 1.837	6.71	.002	1.60	
Teamwork and Interdisciplinary Collaboration	M = 20.5 SD = 2.435	M = 25.7 SD = 2.198	8.01	.003	1.80	
Adaptability and Problem-Solving	M = 19.9 SD = 2.528	M = 25.4 SD = 2.329	8.33	.002	1.87	

To contextualize the statistical findings of Table 6 and assess the real-world effects of amalgamating Chinese and Western medical traditions in education via language education intervention, qualitative research was undertaken through random on-site interviews with international students involved in medical simulations. They were informed about the language education intervention through corpus-assisted CDA approach conducted upon the experimental group after their blinding evaluation to both groups' performances in the medical simulation exercises, enabling a better differentiation towards the subjective experiences and observed performance disparities between students from traditional and integrated curricula, thus, offering deeper insight into the enhanced cultural sensitivity, communication proficiency, and clinical reasoning adaptability reported. These firsthand accounts from simulated patients and community members have enriched the quantitative data and shed light on the educational impact of such integration, elucidating the mechanisms through which students in the integrated curriculum translated their academic learning and linguistic gains into effective practice skills.

The following selected interview excerpts are personal accounts suggesting that the integrative medical education by the language education intervention has created a more adaptable, culturally competent, and empathetic approach to patient care, which is reflected in the improved simulation performance scores.

Excerpt 1

I will give a positive recognition to the students' who received the language [education intervention] program ability to engage with a diverse patient background, showing an individualized approach that respected the patient's cultural and personal circumstances.

One international student, who acted as a patient with a complex medical history, described their interactions with both student groups. This perspective is particularly relevant to the 'Cultural Sensitivity and Mediation' and 'Patient Engagement and Empathy' outcomes where the integrated curriculum students scored markedly higher.

Excerpt 2

I noticed a clear difference in the way the integrated curriculum students communicated, exhibiting greater cultural awareness and sensitivity compared to their traditionally trained peers.

Another international student, portraying a resident from the Western community, provided feedback that speaks to the 'Communication Skills' and 'Professionalism and Ethical Considerations' outcomes. The integrated curriculum students' higher scores suggest a more nuanced approach to intercultural dialogue and professionalism.

Excerpt 3

The experimental group participant reflected on the confidence and comprehensive approach they gained from the integrated curriculum. This education allowed them to navigate clinical scenarios with a level of sophistication and cultural competence that was less apparent among students from the traditional curriculum.

The third international student shared his experience, which is relevant to the 'Clinical Reasoning and Decision-Making' and 'Teamwork and Interdisciplinary Collaboration' outcomes after being told about the language education intervention.

6. General discussion

6.1. Connections and interplay between research findings

What are the current challenges and benefits of conducting integrative medical education? The statistical analysis of the data suggests that the integration of language education and medical education faces similar challenges to the combination of Chinese and Western medical traditions. While there is recognition of the potential benefits in both areas, there are challenges in effectively communicating the practical relevance to students. Faculty members, who might have a deeper understanding or appreciation of the synergies between these domains, are more convinced of the benefits. The NVivo 12 analysis provides a structured understanding of the complex interplay between the benefits and challenges of combining these two educational domains. The findings highlight the need for improved educational strategies that bridge the gap in perceptions and emphasize the practical applications of integrated medical traditions and language education in a way that resonates with student experiences.

In the context of language education and medical education integration, the benefits identified include the promotion of a more holistic approach to medicine and language learning, innovative teaching methodologies, enhanced clinical practice through effective communication, and the relevance of education to real-world scenarios. Conversely, challenges are identified in terms of curriculum development that incorporates both language and medical content, evidence-based practice in language education, faculty preparedness in teaching the integrated curriculum, and fostering positive student-faculty interaction dynamics.

With the insights gained and preconditions established, the current study goes one step further into research question 2, whose findings indicate that a language education intervention focuses on CDA and linguistic representation substantially enhance students' abilities to understand and critically evaluate the portrayal of traditional and Western medical treatments in news media. This conclusion is drawn from the significant increase in post-test scores for the experimental group, which received the intervention, compared to the control group, which did not show a significant change. The large effect size for the experimental group further reinforces the effectiveness of the intervention. Pre-test comparisons confirm that both groups began with similar skill levels, ruling out initial ability differences as a factor. The significant improvements in the experimental group, as opposed to the negligible changes in the control group, underscore the impact of the educational intervention in equipping students with critical analytical skills specific to media discourse on healthcare practices, suggesting that the intervention was effective in enhancing CDA skills specific to the linguistic representation of medical treatments in the news media context.

The language education intervention described, which incorporates guided CDA within a constructivist framework, aligns with the proposed integration of CDA and constructivism to enhance students' linguistic and

cultural competencies (Martin, 2004). By engaging in CDA, students critically analyze the language used in *New York Times* health reports, examining the frequency and context of Eastern and Western medical terms and their portrayal, thereby developing a deeper understanding of the interplay between language, culture, and ideology (Martin, 2004). This intervention encourages active learner engagement and construction of knowledge through social interactions and authentic materials, reflecting the constructivist approach and its aim to bridge language education and medical training (Vygotsky, 1978).

Consequently, if the previous two research questions provide inspirations to inform policy decisions, curriculum design, and educational strategies for integrating language education and medical education, findings contributing to research question 3 supplement the comprehensiveness of the approaches that can bridge the gap between language education and medical education through enhancing students' abilities to effectively communicate in medical settings and providing them with the necessary language skills to navigate diverse patient populations and cultures.

In addressing research question 3, regarding the impact of language education for breeding an integrative medicine curriculum on the enhancement of medical students' cultural competence and communication during patient care simulations, the study's findings offer concrete evidence of the benefits. The comparative analysis reveals that students subjected to an integrated curriculum with a language education component exhibit superior performance across various competencies. Specifically, they show marked improvements in cultural sensitivity and mediation and communication skills, with very large and large effect sizes compared to their peers in traditional curricula. These results suggest that the integrated approach fosters a deeper understanding of cultural nuances and enhances the ability to communicate effectively in a medical context. The statistical metrics, *t*-values and *p*-values, underscore the significance of these improvements, indicating that the observed enhancements are a direct consequence of the pedagogical intervention rather than random variation. Such findings advocate for the inclusion of language education and cultural training as fundamental components of medical curricula, positing that this integrative model not only yields statistically significant advancements but also translates into substantial educational and practical benefits.

The testimonies from "patients", the international students reinforce the quantitative data, reflecting that the merger of medical knowledge with language and cultural education is instrumental in producing healthcare professionals who are adept at delivering patient-centered care across diverse cultural landscapes. Interviews suggest that the integrated curriculum highlighted by language education intervention not only equips the experimental group of students with a blend of medical knowledge but also fosters a deeper understanding of cultural contexts and patient-centered care. The participants' reflections corroborate the statistical findings, indicating that the integrative language and medical education could lead to better healthcare outcomes and more effective medical practitioners.

6.2. In comparison with previous findings

The current study builds upon previous research that highlights the potential for integrating Chinese and Western medical traditions in education, aligning with works such as Dusek (2010) and Fu et al. (2021). It expands on prior literature by identifying a perceptual disconnect between faculty and students regarding the practical application of integrated knowledge, filling a gap not extensively discussed in studies such as Al Shamsi (2020) and Chen & Lu (2006). While previous research has acknowledged the value of integration, the current findings emphasize the need for improved educational strategies that bridge theoretical understanding with clinical practice and resonate with students' experiences.

Additionally, this study provides empirical evidence supporting the effectiveness of CDA as a pedagogical tool, contrasting with the predominantly theoretical discussion on its role in medical education found in works such as Fairclough (2013) and Van Dijk (2015a). The study's quantitative assessment of integrated curriculum outcomes in simulated settings substantiates and quantifies the qualitative benefits suggested by prior research, as seen in works like Eisele et al. (2019) and Kim & Park (2019). This highlights the educational significance of incorporating Chinese and Western medical traditions and perspectives to produce competent medical professionals.

Moreover, the current study aligns with the works of Jarvis-Selinger et al. (2012) and Parish, Dogra, & George (2022) that emphasize the incorporation of CDA into medical education to understand and promote cultural diversity. It builds upon the notion that teaching language competencies in isolation is insufficient and instead advocates for innovative language education that explores the social and cultural dimensions of language use in healthcare settings. The study also relates to the literature on integrative healthcare and medical education, particularly in relation to language analysis and CDA, as discussed in works such as Barreto (2018), Martimianakis & Hafferty (2013), Myers et al. (2022), and Pas-Lourido & Kuisma (2013), which explore the ideological implications of language in documents and policies.

The current study contradicts previous findings by identifying a perceptual disconnect between faculty and students regarding the practical application of integrated knowledge, which was not extensively discussed in prior literature (Al Shamsi, 2020; Chen & Lu, 2006). While previous research has acknowledged the value of integrating Chinese and Western medical traditions, this study highlights the need for improved educational strategies that bridge the gap between theoretical understanding and clinical practice (Dusek, 2010; Fu et al., 2021). By addressing this disconnect, the study contributes to filling a research gap and provides insights into how educational approaches can better align with students' experiences and enhance the practical application of integrated knowledge.

Overall, the current study contradicts previous findings by highlighting the perceptual disconnect between faculty and students and contributes to filling research gaps by providing empirical evidence for the

effectiveness of CDA and addressing the need for improved educational strategies in integrating Chinese and Western medical traditions.

7. Implications, Limitations and Conclusions

The findings from the pedagogical trials conducted in this study, specifically those concerning language education interventions, align with the theoretical framework that integrates CDA within the constructivist perspective. The design of the curriculum aimed to reflect real-world healthcare scenarios, facilitating active learning experiences that required students to critically engage with both Chinese and Western medical knowledge. The integration of simulated patient interactions, which combined elements from the two medical traditions and practices as well as crucial perspectives, was observed to deepen students' comprehension and their ability to apply this knowledge practically. This educational approach is consistent with the principles of constructivism, which advocate for contextual and active learning, and responds to the need for medical education to keep pace with the global convergence of medical practices.

Moreover, the study's results indicate that a constructivist-informed curriculum does more than enhance cognitive development, it also cultivates essential practical competencies in medical students. Structured around problem-solving tasks, collaborative work, and case-based learning, the curriculum should require active engagement with an integrated medical framework. These educational strategies reflect the constructivist perspective that learning is most effective when learners are actively involved in the knowledge construction process. The integration of CDA within a constructivist framework (Figure 1) is particularly relevant in the field of integrative medicine, where the blending of diverse medical systems requires a dynamic and culturally competent approach. The research thus supports the implementation of a constructivist approach that incorporates CDA in curriculum development to better equip future healthcare professionals for the challenges of delivering integrated and culturally competent patient care.

This study, while illuminating the benefits of language education in an integrative medicine curriculum, is not without limitations. Firstly, while the *MediSync Corpus* provides a focused dataset for exploring the linguistic portrayal of Chinese and Western medical practices in *New York Times*, its modest size of approximately 12,000 words is a limitation. With only 40 articles, the corpus may not capture the full range of discourse variations and could limit the generalizability of findings. For comprehensive linguistic analyses, a larger corpus would yield more robust insights into discourse patterns and terminological usage. Therefore, while suitable for introductory educational purposes, the corpus size constrains the depth and breadth of potential research outcomes. Secondly, the research did not extend to longitudinal follow-up investigations of the experimental group, which limits the ability to evaluate the durability of the enhanced cultural competence and communication skills over time. Such a

follow-up could provide insights into the long-term efficacy of the integrative educational approach in clinical practice. Additionally, the absence of further probing into how these skills translate to real-world patient outcomes leaves a gap in understanding the direct impact on healthcare delivery.

Future research should consider expanding the corpus size to encapsulate a broader range of linguistic expressions and to enhance the representativeness of the discourse analysis. Moreover, longitudinal studies are warranted to assess the persistent effects of integrative language education on cultural competence and communication skills, as well as to explore the direct correlation between these educational outcomes and patient care efficacy in diverse clinical environments.

Yu Pan, Doctor of Education, Lecturer at School of Foreign Language Studies, Wenzhou Medical University. Her research interests are TESOL, teacher learning, language and modern linguistics.
Email: panyu@wmu.edu.cn

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Spanish students' perceptions of how they demonstrate their teachers' positive impact on them to maintain their interest

Comfort Pratt

Department of Curriculum and Instruction, College of Education, Texas Tech University, United States

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Abstract

Student attrition rates in K-12 and college Spanish programs in the United States continue to follow a disconcerting trend. While motivational and pedagogical interventions have been investigated, the student–teacher dynamic has not been sufficiently explored as a solution to the problem. A recent study (Pratt, 2023) on Spanish teachers' perceptions revealed that the indicators of their positive impact on their students to maintain their interest in the language are students' interest, motivations, feedback, teacher–student relationships, and engagement in classroom activities and academic success. This follow-up study ascertained what the students themselves believe they do to demonstrate their teachers' positive impact on them to maintain their interest. An online survey was administered to one hundred and one middle school, high school, and lower-level college Spanish students, and the findings revealed that the indicators are: (1) participate in class, do their work, ask more questions, and smile; (2) tell teachers when they are doing a good job; (3) show teachers respect and listen to them; (4) work beyond the requirements; (5) thank teachers and give them gifts; (6) do nothing; (7) talk to teachers often; (8) take more classes with teachers; and (9) rate teachers high in course evaluations. The role of these findings in the execution of effective counteractions to the problem cannot be underestimated.

Keywords discontinuation of the study of Spanish, indicators of students' continued interest, maintenance of students' interest in Spanish, Spanish students' perceptions, Spanish teachers' positive impact on their students

1. Introduction

In 1980, noted author Paul Simon wrote:

Perhaps we should erect a sign at each port of entry into the United States:

WELCOME TO THE
UNITED STATES
ONE OF THE FEW NATIONS
WHICH DOES NOT PROVIDE
ITS STUDENTS EXPOSURE TO
A FOREIGN LANGUAGE

The advantage of the sign would not be the information it would convey to our foreign guests—because they already know that—but the information it would convey to our own citizens. For at a time when the national need suggests that we should be increasing the exposure of our citizens to other languages and cultures, that exposure is declining. And the decline is costly to the nation. Cultural isolation is a luxury the United States can no longer afford. (p. 32)

Despite the findings of many studies over the course of many decades regarding the indispensability of foreign language literacy in the United States, in line with the

tradition in the rest of the world, the status of foreign languages in the country continues to be an issue of great concern as enrollments continue on a downward trend. According to the Modern Language Association (MLA), only 7.5% of college students were studying foreign languages in 2016, down from 8.1% in 2013, 9.1% in 2006, and over 10% in the 1960s and 1970s (Sylvia, 2020). Furthermore, the MLA reported that enrollments plummeted an unprecedented 16.6% between fall 2016 and fall 2021, with an approximately 236,000-student drop that diminished the head count to about what it was in 1998 (Quinn, 2023). Quinn (2023) also reported that between 2009 and 2021, the total percentage drop was 29.3%. According to the 2017 National K–12 Foreign Language Enrollment Survey report (American Councils for International Education, 2017), only 20% of the school-age population were studying foreign languages, and only 11 states required foreign languages. There were no foreign language graduation requirements in sixteen states, and foreign languages could be replaced with other courses in 24 states. This is in stark contrast to other countries. Ninety-two percent of school children in Europe study foreign languages. Therefore, while the rest of the world is increasing its emphasis on foreign language study, the United States is experiencing reductions on all fronts, including program cancellations, teacher shortages, and demotivation among students.

Although Spanish has the highest enrollments at both the K–12 and college levels, it has also experienced substantial reductions in enrollments. Currently, Spanish has 69.21% of K–12 foreign language enrollments, totaling 7,363,125, and approximately half of the foreign language students at the college level, totaling 580,000 (Quinn, 2023), which represents a decrease of 18% from 5 years ago. Meanwhile, the status of Spanish continues to rise globally with about 486 million native speakers. It is used as the official language in 20 countries and is currently the world's second most-spoken native language after Mandarin Chinese. Additionally, it follows English, Mandarin Chinese, and Hindustani as the fourth most-spoken language overall in the world. Also of concern for the status of Spanish is the fact that students are still not studying it long enough to attain advanced and degree levels, because only a small percentage specialize in it. Barnwell (2008) reported that one out of three high school students who began to study Spanish discontinued it in a year, two out of three discontinued after the second year, and 90% dropped it before they reached the fourth year, meaning that most students discontinued the study of Spanish before they acquired communicative competence, or “worthwhile proficiency” as he described it (p. 236). Howard (2007), Pratt (2010, 2012), and Pratt and Rodríguez García (2022) also reported that the ratio of elementary to advanced Spanish in college was 5:1, meaning that for several years, out of every five students who study elementary Spanish, only one continues to advanced Spanish. The effect of these trends on the university degrees conferred is disconcerting. According to the National Center for Education Statistics' Institute of Education Sciences (2023) reports, while the total number of bachelor's degrees conferred has been increasing consistently over the years, the number of degrees in Spanish has been consistently falling. In 2004–2005, out of 1,439,264 bachelor's degrees conferred, 8,304 were in Spanish. In 2009–2010, out of 1,649,919 bachelor's degrees conferred, 9,138 were in Spanish, equivalent to a percentage change of 10%. However, while the overall number of degrees conferred increased to 1,894,969 in 2014–2015, degrees in Spanish decreased to 7,508, equivalent to a minus 17.8% change. Then in 2017–2018, while the overall number of degrees conferred increased to 1,980,665, degrees in Spanish underwent a further decrease to 6,011, which was a further percentage change of minus 19.94%. The repercussions on teacher shortage are tremendous, as fewer graduates leads to fewer qualified teachers. Federal statistics released in 2017 reported that 44 states in addition to Washington, DC have a shortage of qualified foreign language teachers (Stein-Smith, 2019).

While some of the causes of the discontinuation of the study of Spanish are dependent on administrative, political, ideological, and other external factors that have received some attention in the literature, the focus of this investigation is on the dimension that relates to classroom-based issues. In this regard, loss of motivation has been at the forefront due to the demonstrated relevance of motivational theories to the study of foreign languages, with particular reference to intrinsic, integrative, extrinsic, and instrumental motivations (Bateman & de Almeida

Oliveira, 2014; Busse & Walter, 2013; Clément et al., 1994; Deci & Ryan, 1985; Deci et al., 1991; Dörnyei, 1990; Dos Santos, 2021; Gallardo-del-Puerto & Blanco-Suárez, 2021; Gardner & Lambert, 1959; Gardner et al., 1979; Kelm, 2017; Kormos & Csizér, 2008; Myers, 1978; Noels et al., 2000; Pratt, 2010, 2012; Pratt et al., 2009; Ramage, 1990; Skehan, 1989). Teachers' target-language proficiency and instructional abilities have also captured substantial attention due to the ample literature pointing to deficiencies in the preparation of teachers, the low target-language proficiency levels among teachers, instructional incompetence, and inappropriate curricula (Barreneche, 2011; Egnatz, 2017; Hlas, 2016; Kissau et al., 2022; Leonard & Bonilla, 2022; Pearson et al., 2006; Pratt, 2018; Pratt & Rodríguez García, 2022; Salvadores Merino, 2019; Swanson, 2010, 2014; Van Patten & Simonsen, 2022; Vyn et al., 2019; Ziemann, 2016).

The literature also emphasizes the importance of the teacher–student dynamic for continuance, but its focus has been limited. Thus far, it has centered on the development of positive interactions and understanding, positing that it is more likely that students will continue studying Spanish if the student–teacher relationship is positive (Henry & Thorsen, 2018; Moore, 2005; Moskowitz, 1976; Moskowitz et al., 2022; Papalia & Zampogna, 1972; Pratt, 2010, 2023; Speiller, 1988; Tinto, 1975; Wei et al., 2009; Wesely, 2010). While this aspect of the student-teacher dynamic has captured attention over a long period of time, there is a dearth of research on another aspect of the dynamic that plays a central role in students' decision-making processes and must be explored thoroughly, in order to ensure that Spanish educators are not in the dark in terms of what indicators to look for to ensure that their students will continue to study the language. The aspect referred to here is how students indicate to their teachers that they are influencing them positively to keep them interested in the study of the language.

Pratt (2023) investigated Spanish teachers' perceptions about their ability to impact their students positively to keep them interested in the language, and reported that the student behaviors that the teachers believed indicated to them that they were succeeding in maintaining the students' interest in Spanish were their interest in their classes and the language, their motivation toward the language, their feedback, the teacher–student relationships, and the students' engagement in classroom activities and academic success. However, teachers' perceptions of students' intentions have been questionable due to significant disparities that have been reported by many studies (Horwitz, 2000; Papalia & Zampogna, 1972; Pratt, 2010; Pratt et al., 2009), which have called for some sort of meeting of the minds so that teachers and students can be on the same page. In view of this, the study recommended that there should be a follow-up study involving students to investigate their perceptions and determine where they coincide with the teachers and what the differences are. Therefore, the goal of this study was to address this lacuna in the literature by investigating the students' own perceptions regarding what they do to indicate to the teachers that they influence them positively to keep them interested in the study of Spanish.

The focus on students in this study is of utmost importance. As Van Wart et al. (2020) emphasized, “While there are different perspectives of the learning process such as learning achievement and faculty perspectives, students’ perspectives are especially critical since they are ultimately the *raison d’être* of the educational endeavor” (para. 1). Dawson et al. (2019) added that when it comes to students’ education, the critical nature of their perspectives cannot be underestimated, because they provide first-hand and invaluable insights into their expectations, experiences, and outcomes (para. 1). The research questions were:

1. Do Spanish students believe that their teachers have a positive impact on them to maintain their interest in the language?
2. What do Spanish students do to indicate their teachers’ positive impact on them to maintain their interest in the language?
3. What are the similarities and differences between the students’ perceptions and those of their teachers?

Given the overwhelmingly positive response given by the teachers in Pratt (2023) regarding their impact on their students, the hypothesis was that the students’ response would be overwhelmingly positive. Furthermore, based on the results of previous comparisons between Spanish teachers’ and students’ responses regarding their behaviors and intentions (mentioned previously), the author also hypothesized that there would be differences between the students’ and teachers’ perceptions.

2. Methodology

2.1. Participants

Participants were recruited through their school districts and college announcement platforms. One hundred and one middle school, high school, and lower-level Spanish students participated. The participants completed via Qualtrics an online survey developed by the researcher. The participants were diverse in terms of age, gender, grade level, and ethnic affiliation. Respondents who answered just a fraction of the questions were eliminated, and 82 participants were included in the study. Sixty of them (73.17%) identified as female and 22 (26.83%) identified as male. Twenty-seven (32.93%) were in the 10–15 age range, 48 (58.54%) were in the 16–21 age range, and the remaining participants were between the ages of 22 and 50. All the participants were between 10 and 50 years old, and the highest percentage was in the 16–21 age group. Forty-four (53.66%) identified as Hispanic, 29 (35.37%) as Caucasian, five (6.10%) as Asian or other Pacific Islander, three (3.66%) as Black or African American, and one (1.22%) as Native American. In terms of their levels of education, 49 (59.76%) were in high school, 17 (20.73%) were in middle school, and 16 (19.51%) were in college. The number of years they have been studying Spanish ranged from less than 1 year to 17 years. Twenty-five (30.49%) were native speakers of Spanish and 57 (69.51%) were non-native speakers. Twenty (24.39%) were fluent in Spanish and 62 (75.61%) were not fluent. With regard to the effectiveness of their Spanish classes, 12 (14.63%)

indicated that they were very effective, 55 (67.07%) believed they were effective, eight (9.76%) thought they were neither effective nor ineffective, three (3.66%) indicated that they were ineffective, and three (3.66%) reported that they were very ineffective. Sixty-four (78.05%) indicated that they wanted to continue studying Spanish, 17 (20.73%) responded in the negative, and one person did not respond.

2.2. Instruments

One survey instrument was used for the study. It was an online questionnaire consisting of 20 questions. Ten of them were multiple-choice and the other 10 were open-ended. They were used to solicit information regarding both demographics and academic experiences (see appendix for the entire questionnaire). The instrument was developed by the investigator based on previous research on the continuation/discontinuation decision among students of foreign languages (Mouradian, 2021; Pratt, 2010, 2023; Pratt et al., 2009; Ramage, 1990; Ryan, 2018; Snow, 2017; Speiller, 1988; Wesely, 2010).

2.3. Analysis

The analysis was conducted using a mixed-method approach, and SPSS was used for the statistical analysis. First, the participants’ responses to Question 13 were used to answer Research Question 1: “Do Spanish students believe that their teachers have a positive impact on them to maintain their interest in the language?” Then the inter-variable correlations were determined. The responses to Question 14 were extracted and coded inductively and used to answer Research Question 2: “What do Spanish students do to indicate their teachers’ positive impact on them to maintain their interest in the language?” Thematic analysis was conducted due to the exploratory nature of the study. Given the need for the specific answers of the students to be highlighted, the process codes were used instead of creating themes. The students’ responses to Research Question 2 were then compared to the teachers’ responses in Pratt (2023) to answer Research Question 3: “What are the similarities and differences between the students’ perceptions and those of their teachers?” In order to facilitate the comparison, the students’ semantic themes were recategorized into the themes that were developed in Pratt et al. (2020) and Pratt (2023).

3. Findings

3.1. Do Spanish students believe that their teachers have a positive impact on them to maintain their interest in the language?

For this question, out of the 82 participants who completed the survey fully, 75 of them (91.46%) answered in the affirmative and 7 (8.54%) answered in the negative, demonstrating that the students overwhelmingly believed that the teachers influenced them positively to keep them interested in the language. A more detailed review of those who responded positively revealed that 55 (73.33%) of them were female, 41 (54.67%) identified as Hispanic, 26 (34.67%) were Caucasian, five (6.67%) were Asian or

Pacific Islander, two (2.67%) were Black or African American, and one (1.33%) was Native American. Forty-four (58.67%) were in high school, 16 (21.33%) were in middle school, and 15 (20%) were in college. Twenty-two (29.33%) were native speakers of Spanish and 19 (25.33%) were fluent speakers of Spanish. Their ages ranged from 10 to 50 years, and they had studied Spanish for periods ranging from less than 1 year to 17 years. With regard to the effectiveness of their Spanish classes, 12 (16%) believed they were very effective, 55 (73.33%) believed they were effective, three (4%) thought they were neither effective nor ineffective, three (4%) said they were ineffective, and two (2.67%) said they were very ineffective.

Regarding the students who answered in the negative, 71.43% were female, 42.86% identified as Hispanic, 42.86% as Caucasian, and 14.29% as Black or African American. Regarding schooling, 71.43% were high school students, 14.29% were in middle school, 14.29% were in college, 42.86% were native speakers and 14.29% were fluent speakers. Their ages ranged from 11 to 21 years, and they had studied Spanish for periods ranging from 3 to 5 years. With regard to the effectiveness of their Spanish classes, 14.29% believed they were very effective, 28.57% indicated that they were effective, 57.14% thought they were neither effective nor ineffective, and 14.29% said they were very ineffective.

The analysis demonstrated that there was a significant relationship between whether or not students believed

their teachers had a positive impact on them to maintain their interest and the level of effectiveness of their Spanish courses ($r = .26, p < .05$). That means the more effective the classes were, the more positive the teachers' impact on them was to maintain their interest. There was also a marginal significant relationship between whether or not the teachers had a positive impact on them and their desire to continue studying Spanish ($r = .20, p = .079$). That means the more positive the teachers' impact on them was, the more likely they were to continue to study Spanish. There was a significant correlation between native Spanish speaker status and students' grade levels ($r = .49, p < .001$), meaning that native Spanish speakers were more likely to study Spanish at a younger age. Native speaker status also significantly correlated with whether or not they wanted to continue studying Spanish ($r = .28, p < .05$), which means native Spanish speakers were more likely to continue to study Spanish. Fluency in Spanish correlated significantly with age ($r = .48, p < .001$), meaning that older speakers were more fluent in Spanish. Fluency in Spanish correlated significantly with students' desire to continue ($r = .23, p < .05$), meaning that students who were fluent in Spanish were more likely to continue studying the language. Finally, the level of effectiveness of the classes correlated significantly with the desire to continue to study Spanish ($r = .33, p < .01$), meaning that the more effective the classes were, the more likely the students were to continue to study Spanish (see Table 1).

Table 1. Correlation coefficients

	1	2	3	4	5	6	7
1. Positive impact	1	.024	.000	-.029	.047	-.261*	.199
2. Age		1	.724**	.390**	.482**	.045	.076
3. Level of education			1	.488**	.571**	.094	.057
4. Native speaker of Spanish				1	.796**	.121	.279*
5. Fluent in Spanish					1	.068	.225*
6. Level of effectiveness of Spanish classes						1	-.327**
7. Continuation of the study of Spanish							1

*. Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 0.01 level (2-tailed)

3.2. What do Spanish students do to indicate that their teachers have a positive impact on them to maintain their interest in the language?

Due to the fact that the study sought to reveal the students' voices directly, inductive coding was used for the qualitative data. One hundred and fifteen excerpts were extracted from the data. Care was taken to ensure that no a priori codes were used in order to prevent any influence from the previous study on teachers' perceptions (Pratt, 2023) and to be able to explore thoroughly this unexplored issue. Given that survey Question 14 required a direct answer to this research question and the requested information was not hidden, descriptive coding in the form of process coding was used. In a few cases where the information was not obvious, interpretive coding was used.

In vivo coding was used in order to capture the students' actual words and use them to derive the code names, thus capturing the essence of what the students were communicating. The coding and sorting were conducted with Microsoft Word Review. The original coding produced an initial set of 18 codes, and the subsequent line-by-line coding facilitated the refinement of the codes and the capture of further details that pertained to them. The process produced a final set of nine semantic themes that specified exactly what the students believed they did to show their teachers' positive impact on them. Semantic themes were used because the author was more interested in what the participants explicitly wrote than in identifying latent meanings (Braun & Clarke, 2006). After that, the frequencies were assigned (see Table 2).

Table 2. Semantic themes

Semantic Themes	No. of Excerpts	Percentage of Total Number of Excerpts
1. Participate in class, do their work, ask more questions, and smile.	40	34.78%
2. Tell them when they are doing a good job.	30	26.09%
3. Show them respect and listen to them.	12	10.43%
4. Work beyond the requirements.	11	9.57%
5. Thank them and give them gifts.	7	6.09%
6. Do nothing.	7	6.09%
7. Talk to them often.	6	5.22%
8. Take more classes with them.	1	0.87%
9. Rate them high in course evaluations.	1	0.87%

Participate in class, do their work, ask more questions, and smile referred to the students making a conscious effort to participate fully in class, stay engaged in the activities, do the work they were required to do, and ask more questions in order to learn more. *Tell them when they are doing a good job* referred to when the students told teachers directly that they were doing a good job, when they met with their teachers during office hours, at the end of the course, and when they enjoyed an assignment. *Show them respect and listen to them* included various things the students did to show the teachers how much they respected them for their positive impact and listening to what they said and following directions. *Work beyond the requirements* encompassed the attempts the students made to use the language even when they were not required to do so and reading unassigned books to learn more. *Thank them and give them gifts* included the efforts they made to express their gratitude either by telling the teachers or writing notes to them and giving them gifts. *Do nothing* referred to when the students did nothing to show their interest in continuing to study the language. *Talk to them often* referred to the efforts the students made to ensure that they communicated constantly with the teachers. *Take more classes with them* referred to when they chose to take more classes with the teachers who had a positive impact on them. Finally, *rate them high in course evaluations* referred to the students giving high points to the teachers in official course evaluations at the end of the semester.

3.3. What are the similarities and differences between the students’ perceptions and the teachers’ perceptions?

The semantic themes were recategorized based on the themes that were used in Pratt et al. (2020) and Pratt (2023) in order to facilitate the comparison of the students’ perceptions to the teachers’ perceptions (see Table 3). Eighty-eight excerpts were recategorized. There were similarities between the students’ perceptions and the teachers’ perceptions with regard to classroom engagement and academic achievement, positive feedback, student interest, motivation, and teacher–student relationships.

Table 3. Students’ Perceptions Based on Previous Themes

Students’ Perceptions	No of Excerpts
1. Engagement and academic achievement	40
2. Positive feedback	24
3. Student interest	10
4. Motivation	8
5. Teacher-student relationships	6
6. No impact	0

However, the students also had other indicators of their teachers’ positive impact on them that the teachers did not mention. Twenty-seven excerpts did not fit into any of the predetermined categories (see Table 4). They were *show them respect and listen to them; thank them and give them gifts; do nothing; and rate them high in course evaluations* (see explanation under 3.2 above).

Table 4. Semantic Themes Not Covered by Teachers’ Perceptions

Students’ Perceptions	No. of Excerpts
Show them respect and listen to them.	12
Thank them and give them gifts.	7
Do nothing.	7
Rate them high in course evaluations.	1

4. Discussion and Conclusions

This study was conducted in order to ascertain if Spanish students believe that their teachers have a positive impact on them to maintain their interest in the language, determine what the students do to indicate that their teachers have a positive impact on them to maintain their interest in the study of Spanish, and compare the students’ perceptions to the results of a previous study on teachers’ perceptions.

First of all, the study discovered that the students overwhelmingly believe that their teachers influence them positively to help them stay interested, because most of them responded in the affirmative. This result coincides with Pratt et al. (2020) as foreign language teachers also overwhelmingly responded positively, as well as with Pratt (2023), which revealed that Spanish teachers also overwhelmingly responded positively. A comparison of the students who responded in the affirmative and those who responded in the negative showed that there was a

significant relationship between whether or not students believed their teachers had a positive impact on them to maintain their interest and the level of effectiveness of their Spanish courses, so the more effective the classes were, the more positive the teachers' impact on them was to maintain their interest. There was also a marginal significant relationship between whether or not the teachers had a positive impact on students and the students' desire to continue studying Spanish, so the more positive the teachers' impact on them was, the more likely they were to continue to study Spanish. The results also revealed that native Spanish speaker status correlated significantly with students' grade levels, which showed that native Spanish speakers were more likely to study Spanish at a younger age and were also more likely to continue studying Spanish. Fluency in Spanish also correlated significantly with age, meaning that older students were more fluent in Spanish, and also with the desire to continue, meaning that students who were fluent in Spanish were more likely to continue studying the language. Furthermore, a significant correlation between the level of effectiveness of the classes and the desire to continue to study Spanish demonstrated that the more effective the classes were, the more likely the students were to continue to study Spanish.

These results confirm the investigator's assertion that the teachers' positive impact on the students to maintain their interest in the study of the language should be thoroughly investigated as an essential component of the solution to the discontinuance problem. This point of view is what led to the need for this study, in order to bring awareness to the need to capitalize on research into this aspect of the teacher–student dynamic and ascertain different ways in which the data can be implemented to achieve the needed outcomes. The confirmation of the correlations between the positive impact, the effectiveness of the classes, and the continuance of the students by this study provides an opportunity to investigate further these variables, thus contributing significantly to the solution. Further studies must therefore be conducted to investigate these correlations further in order to determine what concrete steps must be taken to put in place strategies that draw from these findings to ameliorate the downward trend. The findings also reiterate the need for all students to start the study of the language at an early age and continue for a long time as these factors together also lead to continuance. These findings therefore fill an important gap in the literature on the discontinuance of the study of Spanish.

With respect to the central issue under investigation, which is how the students indicate that the teachers have a positive impact on them to maintain their interest in the language, the study discovered that the students believed that they did the following: *participate in class, do their work, ask more questions, and smile; tell them when they are doing a good job; show them respect and listen to them; work beyond the requirements; thank them and give them gifts; do nothing; talk to them often; take more classes with them; and rate them high in course evaluations*, in that order.

As stated previously, the most prominent indicator, *participate in class, do their work, ask more questions,*

and smile, grouped together behaviors exhibited by the students in the classroom. Some of the specific responses given by the students were the following: “I pay attention in class, smile, participate in activities and volunteer for reading or pronunciation requests”; “I make sure that I participate regularly”; “I try to answer every question”; “I try to participate and show interest”; “I stay focused”; “I stay engaged”; “I engage in her teaching”; “I pay a lot of attention in class”; “I stay interested”; “I try to participate as much as I can”; “I actually try and allow myself to make mistakes so that my Spanish teachers can correct me and I can learn”; “Do my work”; “Do my best to keep up in class”; “I try to do well on my work to show them that I understand the material”; “I study and do well on my tests”; “Do good on tests and assignments”; “I try my best in every opportunity. I know that to display my interest and continue to do my best in learning, enthusiasm is key”; “Always get good grades”; “Work hard”; “I show her I am trying to learn and speak more proficiently during class”; “In my opinion I do all the things the Spanish teachers want me to do in order pass classes”; “Doing my work for her class”; “Always work hard”; “Try to learn from my mistakes showing that I am learning”; “Continue to show my improvement through written and oral tests”; “Highlight my progress”; “I ask questions about the culture and how the language differs among Spanish-speaking countries”; “Both answer and ask questions”; “Ask for help”; “I try my best in Spanish”; and “I ask them extra questions about themselves and their cultures.”

The second most prominent indicator that their teachers have a positive impact on them to maintain their interest, which was *tell them when they are doing a good job*, comprised students telling the teachers that they were doing a good job verbally or in writing in class, during office hours, when they enjoyed an assignment, or at the end of the semester. Some of the students' answers were: “Tell her that I love her class”; “email to show them I am trying”; “I speak with my teachers directly about what I have enjoyed or where I may need to feel more supported”; “I tell her how far she has helped me come to show my gratitude”; “I tell them in my one-on-one meetings”; “I talk to them about how important Spanish can be in cultures”; “I tell them of their success in teaching me”; “I tell them I am learning”; “I let her know how fun her class is”; “I tell them that I enjoy and appreciate the work they do to gear us to be good Spanish speakers”; “I spoke with my previous teacher a little bit about how I am a Spanish minor and would love to continue learning the language so that I am fluent, but other than that I really haven't expressed my gratitude for my Spanish teachers”; “Talk about it with her”; “I tell her how much I look forward to her class”; and “I tell her how much I enjoy her class”; “I tell them”; “compliments via email”; “I usually talk to them to tell them how much they have helped me”; “Have feedback for them regularly”; “Feedback at the end of the year, in office hours, sometimes”; and “At the end of the year, I write letters/emails to the teachers who had a positive impact on me, and whose classes I enjoyed attending.”

The third indicator, *show them respect and listen to them*, included behaviors that were directly geared toward respecting the teachers, including listening to them and doing what they say. The students' responses included the

following examples: “I am respectful”; “I respect her”; “I listen to what they have to say”; “I listen when they speak”; “I listen to her when she is talking”; “I also try to actively listen to my Spanish teacher to let her know that I am motivated to learn Spanish”; “I listen to what she tells me and never interrupt her”; and “I listen and do what the teacher says.”

The fourth indicator, *work beyond the requirements*, referred to the attempts the students made to do extra work, such as speak Spanish outside class, above and beyond the course requirements. Some of the students’ specific answers were: “I speak to her in Spanish outside of class whenever I see her”; “I speak Spanish to her”; “I practice saying simple phrases and questions in Spanish”; “I also try to speak with them in Spanish even though my vocabulary and grammar is still at the beginner level”; “I try to always talk Spanish and not English”; “I talk fluently about what we are learning in class”; “Greet them and say goodbye in Spanish”; and “I only speak to them in Spanish to encourage me to practice.”

The fifth indicator, *thank them and give them gifts*, included directly thanking teachers and showing them gratitude, which included bringing them gifts. Some of the students’ responses were as follows: “I thank her and let her know that I’m appreciative”; “By showing them gratitude”; “I appreciate them and thank them”; “I send an email thanking them”; “Sometimes I bring little gifts for my teachers to show my appreciation for them and all that they do”; and “I have gotten my teacher a gift.”

The sixth indicator, *do nothing*, referred to when students failed to do something to show the teachers that they were influencing them positively, and their regrets for not doing so. The responses included the following: “I do not do anything”; “I don’t”; “Nothing”; “Sometimes I don’t”; “I don’t, and I should be much better”; “Now thinking about it, I want to thank them because I know their job isn’t easy.”

The seventh indicator, *talk to them often*, referred to talking to teachers as well as being kind to them, and consisted of responses including the following: “I talk to her and smile every day”; “Talk to them a lot”; “Engage in conversations with her”; “Be friends”; and “I attempt to be kind.”

The eighth indicator was *take more classes with them*, and the response was as follows: “I also took her class 2 years in a row.”

Finally, the last indicator, *rate them high on course evaluations*, refers to formal surveys on the teachers’ performance that the students complete at the end of the semester or year, and the response was: “I rate my Spanish teachers on the surveys at the end of the class to let them know that they have made a positive impact on my learning.”

These indicators provide very important information regarding what Spanish students do to demonstrate that their teachers influence them positively to keep them interested in the study of Spanish. This is a powerful tool that educators can use to guide them as they attempt to increase the number of Spanish students who continue the study of the language and reduce the attrition that pervades Spanish programs. Given that the students spend a good amount of time with their teachers, the

implementation of measures that focus on ensuring attention to these indicators will impact significantly the resolution of the continuation/discontinuation dilemma.

With regard to the comparison between the perceptions of the students and the teachers, the investigator’s hypothesis was confirmed, because although there were some similarities, there were also important differences. The similarities included *classroom engagement and academic success, positive feedback, student interest, student motivations, and teacher–student relationships*. This demonstrates that the teachers do observe successfully certain aspects of the students’ behavior that are indicative of their positive impact on them to maintain their interest. That, together with the overwhelming agreement among the students that the teachers do have a positive impact on them, confirms that the student–teacher dynamic has some positive outcomes with respect to the continuation of the study of the language even if it has not been investigated and cultivated.

The study also revealed additional indicators that the teachers did not mention, demonstrating that there are other important factors that the teachers are unaware of and therefore do not take into consideration. The additional indicators were: *show them respect and listen to them, thank them and give them gifts, do nothing, and rate them high in course evaluations*. Emphasis needs to be put on all the indicators, but especially the ones that were not perceived by the teachers. The implications of this for Spanish programs and educators is invaluable as this meeting of the minds will make it possible for students and teachers to derive the best from their dynamic. The indicators that were not perceived by the teachers provide crucial information, as those could be the factors that teachers are most likely to not be conscious of and look out for. It must also not be assumed that the fact that the teachers’ data produced a number of themes that coincided with the students’ perceptions means that all the teachers had knowledge about all those indicators, so it is not only the indicators that were not produced by the teachers that the educators need to become aware of, but rather every indicator that was revealed by this study. The discovery of these indicators also highlights the need for students to reflect on how they communicate their perceptions to their teachers as the teachers need to receive a clear message that can inform their instructional practices and subsequently their effectiveness and ability to influence them positively to lead to their continuation of the study of the language.

The findings of this study fill a gaping hole in the literature with respect to the discontinuation trend that is eroding the study and status of the Spanish language in the United States, as they draw attention to important indicators that must be brought to light and emphasized in an attempt to keep students in Spanish programs longer and give them an opportunity to at least acquire communicative competence. With the exception of Pratt (2023), who studied the perceptions of Spanish teachers regarding their beliefs about how their students demonstrate their positive impact on them, none of the previous studies on the continuation/discontinuation decision investigated any aspects of this issue. Therefore, these findings are a new addition to the field and a

beneficial follow-up to the findings revealed by Pratt (2023), as both sides of the dynamic have now been revealed. The indicators are valuable tools that constitute a point of departure in the right direction to ensure that what is intended by the students is clearly perceived by the teachers and that educators and programs put into effect the necessary efforts to ensure that these indicators are present to confirm the continuation of students in the programs. The author by no means intends to presume that the list of indicators revealed in this study is exhaustive. On the contrary, follow-up studies are strongly recommended as there is still more to be discovered in the exploration of the indicators and how the results can be utilized to identify solutions to the discontinuation problem, as well as the subsequent development of effective strategies for their detection and incorporation.

5. Limitations of the Study

This study has revealed significant information about how Spanish students demonstrate that their teachers are influencing them positively to help them stay interested in the study of Spanish. This information is extremely useful for increasing continuance of the study of the language. However, the participants do not represent all the levels of the study of Spanish as they were middle and high school and lower-level college students. Additionally, given that the students' fluency levels were self-reported and not assessed, they may have interpreted fluency differently, and that could have skewed the results of the inter-variable associations.

Dr. Comfort Pratt received her Bachelor of Arts with Honors degree in Spanish and French with a minor in Linguistics at the University of Ghana, a Graduate Certificate in Translation at Complutense University in Madrid, Spain, a Master of Arts Degree in Modern Languages at Texas A&M University, and a Ph.D. in Romance Linguistics and French at Louisiana State University. She is currently an Associate Professor of Curriculum and Instruction at Texas Tech University. Her areas of specialization include foreign language education, second language acquisition, bilingual education, and sociolinguistics. She is the author of *El español del noroeste de Luisiana: Pervivencia de un dialecto amenazado* (2004), and *In-Class Communicative Projects* (2008). Her recent articles include "Creencias de autoeficacia y principales desafíos docentes de profesores de español como segunda lengua" (2022), "Foreign language teachers' self-efficacy beliefs and perspectives about maintaining their students' interest" (2021), and "Spanish teachers' perceptions about their positive impact on their students to maintain their interest" (2023).

Email: c.pratt@ttu.edu

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Do metaphors help or hinder second language vocabulary acquisition?

Rachael Howe 

University of Oxford, Oxford, United Kingdom

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Abstract

The use of non-literal language and its influence on second language (L2) vocabulary acquisition is a widely debated topic. This article focuses specifically on the role of metaphors as an example of non-literal language and a pragmatics related phenomenon, beginning with how conceptual and enactment-based metaphor awareness can support L2 vocabulary acquisition. Opposing arguments suggesting that metaphor may hinder L2 vocabulary learning are also explored, such as the role of an individual's first language (L1), along with insufficient vocabulary size and depth. Implications for both L2 vocabulary research and practice are discussed before reaching an overall conclusion.

Keywords conceptual metaphors, L2 vocabulary learning, non-literal language

1. Introduction

Metaphorical language has often been explored through Lakoff and Johnson's (1980) theoretical framework of Conceptual Metaphor Theory, which posits that metaphor is about understanding the link between constructs within our daily lives that can shape the way in which we perceive the world. They argue that metaphor is a conceptual process establishing connections between a source domain, typically a concrete concept, and a target domain, which is an abstract entity, such as "understanding is seeing" (Suárez-Campos, 2020, p. 79). Lakoff and Johnson (1980, p. 4) illustrate their framework through the conceptual metaphor "argument is war", which can be reflected in everyday language through expressions such as "I demolished his argument" and "He shot down all of my arguments".

The role of conceptual metaphors in L2 education has been found to enhance language learning by supporting learners in recognising the ubiquity and non-arbitrary nature of different linguistic realisations of metaphorical expressions (Boers, 2004). Several studies have found that knowledge of conceptual metaphors can improve learners' vocabulary acquisition (Condon, 2008; Deignan, Gabrys, & Solska, 1997; Veliz, 2017). Boers (2013) highlights that conceptual metaphors benefit learners by revealing the motivations behind metaphoric expressions. However, further research goes beyond conceptual metaphors and instead points to the role of enactment in raising learners' metaphoric awareness and ultimately their L2 vocabulary acquisition. Cohen (1989) notes that enactment is a symbolic action that learners perform and often with the use of either real or imaginary objects, which can enhance retention of new language. In a longitudinal 14-month

study, Macedonia and Klimesch (2014) explored enactment-based metaphor awareness to teach L2 metaphoric expressions and found that participants in the experimental group could remember enacted vocabulary items significantly more than those who only received an explanation of the vocabulary item.

The influence of a learner's L1 has been found as a potential variable to how successfully metaphors can support L2 vocabulary acquisition. In an empirical study featuring L1 English-L2 advanced Korean learners, Türker (2016) highlights the importance of the L1 metaphor sharing lexical and conceptual similarities with the L2 equivalent to support understanding and L2 vocabulary acquisition, even when learners have high levels of proficiency. Sharifian (2007) offers evidence from L1 Persian-L2 English speakers to illustrate the idea that L2 learners draw on the cultural conceptualisations that are associated with their L1 to unpack the meaning of L2 metaphorical expressions, suggesting an interdependence between the L1 and L2. This is supported by Kövecses (2003), who notes that metaphors are both cognitively and culturally motivated, therefore any cultural differences between the L1 and L2 can result in different interpretations of a conceptual metaphor shared in both languages. An increased typological distance between the L1 and L2 can lead to great difficulty for learners in trying to interpret metaphoric expressions (Chen & Lai, 2013).

Lexical knowledge has also been found to influence the role of metaphors in L2 vocabulary acquisition. Boers (2004) argues that beginner learners encounter the most difficulty with L2 metaphoric expressions due to their limited proficiency, whereas advanced learners may doubt the acceptability of their translations; it is the intermediate learners who are more likely to engage with figurative language. Jin (2011) analysed how learners of L2 Chinese

and L2 English use spatial metaphors in their writing and found that as learners advance in their linguistic proficiency and their lexical knowledge increases, they demonstrate more understanding and production of L2 metaphors in their writing. This points to a developmental trajectory, suggesting that metaphors may be of more benefit to learners at a higher level of linguistic proficiency.

2. Conceptual metaphors support L2 vocabulary acquisition

Through knowledge of conceptual metaphors, learners have demonstrated enhanced comprehension and retention of L2 idiomatic language. A study by Yasuda (2010) investigated this relationship with L1 Japanese - L2 English learners, exploring the acquisition of idiomatic phrasal verbs. Students in the control group received typical instruction for learning a set of phrasal verbs, whereas those in the experimental group learned the same verbs but through a cognitive linguistic approach. Despite only exploring short-term acquisition, clear findings revealed that knowledge of conceptual metaphors enabled learners to rely on metaphorical thought to support their acquisition of target idioms. Beréndi, Csábi, and Kövecses (2008) yielded similar results in a study featuring L1 Hungarian - L2 English teenage learners. The students who were supported in their understanding of how conceptual metaphors structure the meaning of L2 idioms were able to comprehend and recall this language far greater than those without such explicit instruction. A five-month post-delayed test reported the same findings, pointing to long-term benefits of using conceptual metaphors to support L2 vocabulary acquisition.

The positive influence of conceptual metaphors on L2 vocabulary acquisition can also be observed through raising learners' metaphoric awareness, a term coined by Boers (2000) to signify an individual's sensitivity to metaphors and their awareness of how language can encode different concepts. Gao and Meng (2010) adopted a quasi-experimental study with L2 English university students and found that learners who were exposed to vocabulary according to a common metaphorical theme, in comparison to learners presented with vocabulary organised by its functional usage, outperformed their peers in comprehension and retention. Such an approach also suggests that by drawing patterns and analogies across words, the learning burden will be lighter (Nation, 2022). Metaphoric awareness, therefore, is regarded as a "channel for vocabulary acquisition" (Boers, 2000, p. 553) and can serve as a platform for learners to develop metaphoric competence; an individual's ability to use the conceptual system of the L2 to express themselves rather than relying on that of the L1 (Danesi, 2008).

3. Enactment-based metaphor awareness supports L2 vocabulary acquisition

Metaphor awareness-raising activities based on enactment can increase awareness of the embodied

motivations behind conceptual metaphors and facilitate acquisition (Saaty, 2020, p. 263). Lindstromberg and Boers (2005) investigated the influence of enactment-based metaphor awareness on the acquisition of L2 English action verbs by Dutch university students. In the enactment group, students played charades by acting out metaphoric action verbs, such as "leap" and "pounce", while others guessed the meaning. Students in the comparison group, however, used verbal descriptors without any enactment. An immediate post-test required students to supply the missing verbs they had learned, along with a one-week delayed post-test, where students evaluated translations of the same verbs used metaphorically. Findings revealed that embodied action metaphor awareness significantly aided not just students' retention of the verbs, but also led to in-depth learning of interpreting the metaphorical usage of the verbs. Additionally, the authors concluded that this approach supported learners' ability to interpret the meaning of untaught metaphoric expressions (Lindstromberg & Boers, 2005).

Further support can be evidenced in a study by Saaty (2020), who compared the influence of enactment-based metaphor awareness with conceptual metaphor awareness on L2 English vocabulary acquisition amongst Saudi students. Participants did a range of comprehension and production tasks pertaining to the metaphor "life is a journey" and also completed a two-week post-test. Saaty's (2020) findings accorded with those of Lindstromberg and Boers (2005); enactment of the metaphorical expressions had a positive effect on memory and promoted heightened awareness of the embodied meanings, leading to enhanced L2 acquisition. Gibbs (2014) proposes that unlike conceptual metaphors, which focus on organising abstract concepts, embodied metaphors are an inherent part of who we are and our interaction with the world. They are at the root of why our language and gestures are "grounded in everyday bodily actions" (Gibbs, 2014, p. 168). Gibbs' (2014) position suggests that whilst conceptual metaphor awareness can help learners to understand and structure abstract ideas, it is perhaps more of a superficial approach to L2 acquisition. Embodied metaphors, however, are centred around the individual and encourage both linguistic and non-linguistic instantiations of metaphors, potentially facilitating deeper and richer L2 vocabulary acquisition.

4. L1 influence on metaphors hinders L2 acquisition

Despite empirical evidence suggesting that metaphors can enrich L2 vocabulary acquisition, studies have found that a learner's L1 may negatively influence this. Charteris-Black (2002) investigated whether Malay EFL learners' L1 conceptual and linguistic knowledge had an impact on their performance during a multiple choice and gap-fill task using L2 metaphorical expressions. Findings revealed that the most difficult figurative expressions for the participants were those which were dissimilar at conceptual level but shared an equivalent linguistic form. This imbalance between the L1 and L2 expressions led to

L1 interference, as participants were tempted by the literal translation of the linguistic form to activate a similar conceptual basis in their L1, which did not support the L2 (Charteris-Black, 2002). Chen and Lai (2013) investigated Taiwanese EFL learners' ability to translate English metaphorical sentences into Chinese and also reported poor performance when L1 and L2 conceptual metaphors were distinct. These findings suggest that concepts which have a pre-existing category in the L1, not shared by the L2, may hinder development of metaphor knowledge if learners try to apply this conceptual L1 knowledge to the L2.

L1 influence has also been observed in learners' L2 written production featuring the use of metaphors. Littlemore et al. (2013) analysed one hundred anonymised examination essays written by L1 Greek and L1 German L2 English learners from a range of CEFR levels scaling from A2 - C2. At B2 level, the learners produced significantly more errors in attempts at metaphorical expressions owing to L1 influence. Such errors were found in a higher proportion of open-class metaphors containing nouns, verbs, or adjectives, rather than closed-class metaphors focusing on prepositions or determiners (Littlemore et al., 2013). These findings are corroborated by Iaroslavtseva and Skorczynska (2017), who explored the use of metaphor in 100 L1 Spanish - L2 English learners' essays; 50 at CEFR level B2 and 50 at level C1. They found that learners' writing at B2 level contained the most metaphors, 53% of which were erroneous metaphors as a result of L1 influence. In line with Littlemore et al. (2013), the errors were more frequent in open-class as opposed to closed-class metaphors, which Martín-Gilete (2022) postulates may be because these metaphors enable learners to express a wide variety of conceptual meanings. Closed-class metaphors, however, are more restrictive and denote a much narrower set of meanings (Sullivan, 2013). Littlemore et al. (2013) propose, therefore, that learners at this stage are heavily influenced by their L1, resulting in L2 acquisition errors as they increase their usage of open-class metaphors.

5. Vocabulary size and depth hinders metaphorical understanding

In addition to the influence of a learner's L1, insufficient previous vocabulary knowledge may also cause difficulties for learners using metaphors in L2 vocabulary acquisition. A study by Hessel & Murphy (2019) investigated the comprehension of metaphors by children with English as an Additional Language (EAL) in England. Metaphors were presented in the context of short stories, from which children were required to answer questions pertaining to the story: a recall, multiple-choice, and reasoning task. In comparison to their monolingual peers, the EAL children demonstrated weaker metaphor comprehension and smaller receptive vocabularies and experienced the greatest difficulty during the reasoning task, which the authors note is a higher-order task requiring explanations and inferences about metaphors (Hessel & Murphy, 2019).

The findings from Hessel and Murphy's (2019) study are twofold. Firstly, the results point to a relationship

between overall size of vocabulary knowledge and metaphor comprehension. Rundblad and Annaz (2010) arrived at a similar conclusion to Hessel and Murphy (2019) in their study of a metaphor comprehension task featuring short picture stories, determining that increased receptive vocabulary size was a higher predictor of metaphor performance in young children and adults. Developing a learner's overall vocabulary knowledge therefore appears to be pertinent to metaphorical understanding, as a lack of this may impede L2 acquisition when learners encounter metaphors in their second language.

However, as Wolter (2006, p. 746) points out, an individual's L2 lexical network "cannot merely be explained through vocabulary size", thus the second implication of Hessel & Murphy's (2019) study is that of vocabulary depth. The authors highlight that in addition to a limited vocabulary range hindering the EAL children's ability to explain the meaning behind the metaphors in the stories during the reasoning task, they also experienced great difficulty understanding how vocabulary items "are processed in the company of other words" (Hessel & Murphy, 2019, p. 280). This suggests that solely increasing vocabulary size is insufficient for L2 vocabulary acquisition, but rather learners should also understand how individual words connect through both lexical and grammatical knowledge. Vocabulary depth therefore necessitates richer knowledge of a word by strengthening the connections between word items (Meara, 2004). In this respect, without depth of understanding about words, learners can experience difficulties with metaphorical understanding and as such, second language acquisition may be compromised.

Further support for how insufficient vocabulary depth can lead to L2 acquisition difficulties concerning metaphors can be evidenced by Littlemore et al. (2011). Their study explored the impact of university lecturers' use of metaphors on English for Additional Purpose (EAP) students' understanding. The researchers found that 90% of the students' confusion was due to misinterpreting the metaphorical language, and that even when the expressions consisted of familiar word items to the students, they misunderstood 41% of them (Littlemore et al., 2011). From Glucksberg's (2012) perspective, learners should employ categorisation processes when trying to decipher the meaning of metaphors by constructing a metaphorical category that is different from the lexically encoded concept. For example, in the metaphor "my lawyer was a shark", the metaphorical vehicle is in reference to the metaphorical shark, not the literal creature (Glucksberg, 2012). In this sense, the word "shark" under a metaphorical category would include qualities that are shared by both sharks and lawyers, and as such learners need to ascribe properties such as "aggressive", for example, to both (Glucksberg, 2012). This interpretation therefore suggests that limited depth of students' vocabulary in understanding the metaphorical property of words can hinder their comprehension of metaphorical expressions and subsequently impede L2 acquisition.

6. Implications for L2 vocabulary practice and research

From the evidence presented, a key implication for teaching practice is the importance of raising learners' metaphoric awareness to build their competence and L2 vocabulary. Drouillet et al. (2018) posit that this can be achieved through implicit learning, having found a relationship between students who demonstrated understanding of novel metaphors and had higher implicit learning abilities. However, whilst this approach may be advantageous for such students, we cannot assume that all learners will be able to draw on their implicit learning abilities to support L2 vocabulary acquisition. Danesi (1988) believes that while acquiring figurative concepts in a L1 develops naturally, learners need to be equipped with a set of skills to achieve this in a L2. This points to the need to adopt more of an explicit approach to raise learners' metaphoric awareness, not necessarily in place of implicit learning, but rather to complement their incidental learning of new vocabulary to develop acquisition (Spada & Tomita, 2010).

Graham et al. (2020) postulate that explicit instruction through literary texts such as poems offer a creative outlet for learners to develop their metaphoric awareness, along with increased understanding of the importance of metaphors in L2 communication. However, Veliz (2017, p. 835) argues that any form of language, not just lexically rich or literary texts, has the capacity to raise learners' metaphoric awareness through "systematic and explicit explanations". MacArthur (2010, p. 159) offers support, highlighting the advantage of developing metaphoric awareness for even complete L2 beginners as a tool to "make meaning from everyday, familiar words". This suggests that through explicit guidance, educators can support students to unpack the figurative meaning of L2 words, thus not only heightening their metaphorical awareness, but also their vocabulary depth to support L2 lexical development. If learners are familiar with metaphors and the figurative meaning of words from the beginning of L2 acquisition, then this may support the trajectory of their learning as they progress to using more advanced vocabulary.

As for research implications, the relationship between the influence of metaphor and L2 education remains scarce (Hoang, 2014). The extent to which metaphorical meanings of words are stored in the L2 lexical system in the same way as non-metaphorical words remains an underdeveloped area of research (Kohl, Bolognesi & Werkmann-Horvat, 2020). To this degree, Hoang (2014) questions whether metaphorical meanings involve the learning of individual word items, or rather conventionalised expressions that form part of a larger L2 system. The absence of this research has direct implications for L2 vocabulary teaching. There remains ambiguity regarding whether figurative expressions should be grouped under metaphorical themes (Boers, 2004), whether lists of individual words should link to common metaphors (Hoang, 2014), or even if entire language curriculums should be redesigned around metaphorical themes (Danesi, 2008).

7. Conclusion

The use of metaphors as an example of non-literal language can positively influence L2 lexical development. There is evidence to suggest that knowledge of conceptual metaphors supports not just the comprehension of L2 vocabulary, but also the retention of this at a later stage. Studies exploring embodied action metaphor awareness also point to similar findings, proposing even richer L2 acquisition through enactment of metaphorical expressions. However, it should be recognised that interference from a learner's L1 may hinder L2 vocabulary acquisition due to dissimilarities in the metaphors at conceptual level. Additionally, misunderstandings regarding the metaphorical properties of L2 vocabulary can be traced to limited vocabulary size and depth, which may also impede acquisition. Overall, evidence suggests that explicit instruction to raise learners' metaphoric awareness, and subsequent metaphoric competence, is beneficial for L2 vocabulary acquisition. Through explicit guidance, educators have the potential to equip learners with knowledge and understanding of metaphors, along with the linguistic tools to decipher meaning from non-literal language. Finally, with regards to future research, this should expand on the currently underdeveloped area surrounding how metaphorical meanings of words are stored in the lexicon, to make evidence-informed recommendations for L2 pedagogy concerning the teaching of L2 vocabulary.

Rachael Howe graduated from the University of Southampton in 2020 with an MLang (Hons) degree in German and Spanish Linguistic Studies. She then completed the Cambridge CELTA, followed by a PGCE in Modern Languages at the University of Chester. She is a Teacher of Modern Languages and is currently a part-time student at the University of Oxford studying for an MSc in Applied Linguistics for Language Teaching. Her research to date has predominantly focused on various areas of second language acquisition, with a particular interest in second language speech. She is currently investigating second language phonological decoding and the importance this has for the Modern Languages classroom with teenage learners of Spanish.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Revolutionising EFL pedagogy: Innovative strategies for integrating GAI (ChatGPT) into language teaching

Chenghao Wang , Yuqing Wang, Bin Zou 

Department of Applied Linguistics, Xi'an Jiaotong-Liverpool University, Suzhou, China

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Abstract

The recent emergence of cutting-edge Generative Artificial Intelligence (GAI) technology has gained significant attention across diverse domains, and education has not been shielded from its influence. However, the integration of GAI in education remains nascent, with scant attention paid to offering strategic guidance for its specific application in English language teaching. Employing ChatGPT as an example, this article aims to provide English teachers with innovative strategies for incorporating GAI into their daily teaching practices, encompassing class preparation, in-class and after-class instruction and its utilisation as an academic research assistance tool. Furthermore, it highlights the potential challenges and risks associated with adopting GAI in language education, urging teachers to exert timely intervention and guidance when incorporating this technology. Ultimately, the article strives to revolutionise current English teaching pedagogy and shape the future of educational practices.

Keywords GAI, language teaching, ChatGPT, EFL

1. Introduction

With the iterative advancements and breakthroughs in Artificial Intelligence (AI) technology, Generative Artificial intelligence (GAI) has gradually entered the public eye, attracting widespread attention. GAI can be understood as utilising AI technology to generate explicit, rich content in text, images, audio, and other multimedia formats (Cao et al., 2023). This multimodal, novel human-computer interaction paradigm has the potential to empower intelligent higher education comprehensively and offers possibilities for breaking traditional research and teaching methodologies (Cai et al., 2023). ChatGPT, developed by Open AI, has received significant attention in the GAI industry, marking the advent of the new AI era (Cao et al., 2023; Pack & Maloney, 2023). Employing large language models and natural language process technology, ChatGPT can generate coherent, relevant, and multiple responses based on user queries (Wu et al., 2023; Wan & Moorhouse, 2024). Presently, major technology companies are devoted to developing large models. Google's Bert, Microsoft's Copilot, Baidu's "Ernie", Alibaba's "Qianwen", and the Chinese Academy of Sciences' "ZiDongTaiChu" are among the significant language model software exhibiting notable potential in the field of language education. Like ChatGPT, they also possess the capability for multimodal generation, effectively processing images and document information, thereby providing English as a Foreign Language (EFL) teachers from different countries with additional teaching

assistance tools. As EFL teachers, utilising such software can significantly alleviate workloads on multiple levels (Guo & Wang, 2023), including assistance in pre-class preparation, in-class activity design, and post-class feedback. More importantly, AI digital literacy is a focal point in the current educational environment (Chiu et al., 2023). Guiding English teachers to utilise GAI tools as pedagogical aids fosters more effective classroom interactions and enhances their digital literacy. Hence, this article comprehensively summarises and details teachers' strategies and specific operations utilising such tools for EFL instructional support.

2. The Current State of GAI-Assisted Teaching

Scholars (Guo & Wang, 2023; Wan & Moorhouse, 2024) have summarised that in the realms of listening and speaking, ChatGPT and its derivative, Call Annie, can provide listening materials and oral practice, encompassing listening comprehension, oral expression, and pronunciation exercises. In reading and writing, these tools can offer resources for reading materials and exemplars for writing exercises, along with timely assessments and feedback that encompass problem-solving strategies, grammar, and content correction. Additionally, they can assist students in understanding challenging content through translation (Nazir & Wang, 2023). GAI further satisfies students' needs across various learning domains by providing practical learning

resources and swift information retrieval, enhancing learning outcomes. However, the powerful text-generating capabilities also give rise to issues of academic plagiarism. Chomsky (2023) argues that the outputs from such software can constitute a form of plagiarism that is difficult to detect and could pose numerous risks to the academic community. Consequently, some schools abroad have banned the use of GAI by students during the writing process (Jimenez, 2023), and many teachers have felt the professional threats posed by the array of GAI software (Sun & Hoelscher, 2023; Wang et al., 2023).

When confronted with the opportunities and challenges arising from the advent of AI in the educational domain, English teachers find that mere proficiency in language is insufficient. It becomes imperative to grasp AI's underlying working principles and algorithms, employing them critically to achieve a harmonious coexistence between teachers and AI (Hu & Qi, 2023). The following section expounds upon how EFL teachers can better utilise GAI (ChatGPT Web version as the example) to improve teaching strategies before, during, and after class and input prompts more intelligently and efficiently.

3. Instruction of GAI-assisted Language Teaching

3.1. Class Preparation

3.1.1. Curriculum Design

When preparing a lesson through GAI software, teachers can use appropriate prompts to ask questions and obtain suggestions and guidance regarding curriculum design. Key terms should include the main content and objectives of the curriculum, primary skills to be enhanced, student background, class duration, etc. (see Figure 1). If dissatisfied with the results or seeking further elaboration on a specific aspect addressed earlier, teachers can continue questioning. For instance, they may inquire, "Please elaborate on the second point mentioned earlier, providing additional examples and detailing time allocation."

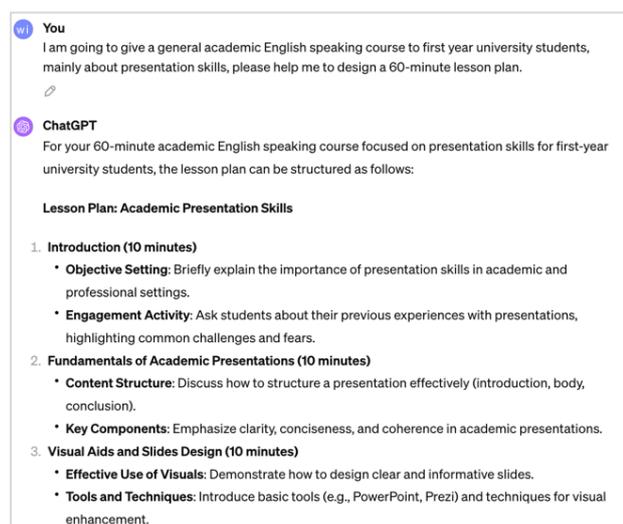


Figure 1. Part of ChatGPT generated lesson plan

3.1.2. Student Questions Simulation

ChatGPT can role-play as a student with assigned background information during lesson preparation, enabling it to pose questions from the student's perspective. For instance, by using a prompt such as: "You are a third-year English major student with a basic proficiency level, having scored 6.0 on the IELTS exam. I am your linguistics teacher, and today's lesson focuses on the phonetics section. I have just explained English pronunciation positions. Now, based on the lecture content, please ask some questions." As illustrated in Figure 2, ChatGPT can swiftly generate questions, allowing educators to brainstorm and prepare classroom materials more comprehensively before class. These questions can also be incorporated as part of in-class quizzes.

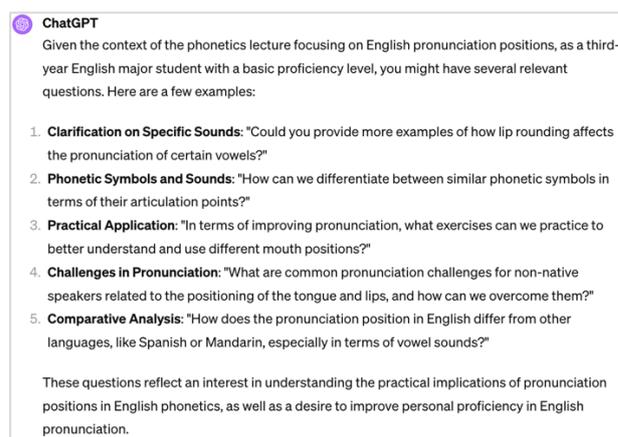


Figure 2. ChatGPT response page

3.1.3. Assisting in Students' Need Analysis

Teachers must be able to understand students' variety of learning needs and implement differentiated instruction tailored to individual capabilities (Pozas et al., 2020). Utilising ChatGPT to gather background information from students and conduct fundamental questionnaire analysis can swiftly aid educators in determining the difficulty level of instructional content and offering suggestions. Teachers can follow the steps depicted in Figure 3 by first using a prompt such as 'I am an academic English teacher and would like to evaluate my students' familiarity with academic English and their current English proficiency level. Could you help me design a simple questionnaire?'. As shown in Figure 4, the responses present a questionnaire developed by ChatGPT, comprising multiple-choice and open-ended questions about students' background information, English proficiency, and academic English proficiency. Subsequently, a preliminary analysis of the results, such as English proficiency levels, can be conducted, and feedback can be provided to ChatGPT for classroom design guidance (see Figure 5).



Figure 3. Flowchart of need analysis

ChatGPT
Certainly, designing a questionnaire to assess your students' familiarity with academic English and their current English proficiency level involves a mix of subjective and objective questions. Here's a simple yet effective questionnaire:

Academic English Proficiency Questionnaire

- 1. Personal Information**
 - Name:
 - Age:
 - Major/Field of Study:
- 2. General English Proficiency**
 - How would you rate your overall English proficiency? (Beginner/Elementary/Intermediate/Advanced)
 - Have you taken any standardized English tests (e.g., TOEFL, IELTS)? If yes, please mention your score.
- 3. Experience with Academic English**
 - How often do you read academic texts in English? (Rarely/Sometimes/Often)
 - Have you written academic papers or essays in English? (Yes/No) If yes, how frequently?

Figure 4. The questionnaire developed by ChatGPT

You
The overall level of the students is at IELTS 5.0, and they are basically unaware of English for Academic Purposes, so could you please provide me with some ideas and suggestions for the design of teaching and learning materials?

ChatGPT
For students at an IELTS level of 5.0 who are new to English for Academic Purposes (EAP), the teaching and learning materials should be designed to gradually build their academic language skills while being engaging and accessible. Here are some ideas and suggestions:

- 1. Basic Academic Vocabulary Development:**
 - Create vocabulary lists focused on common academic words and phrases.
 - Incorporate vocabulary exercises like matching words with definitions, sentence completion, and word formation tasks.
- 2. Reading Comprehension with Academic Texts:**
 - Use simplified academic articles or excerpts relevant to their fields of study.
 - Develop activities like summarizing paragraphs, identifying main ideas and supporting details, and discussing the text's implications.
- 3. Writing Skills Enhancement:**
 - Introduce basic academic writing structures, such as essay formats, report writing, and literature reviews.
 - Assign short writing tasks initially, like paragraph writing, which gradually increase in complexity.

Figure 5. The class design developed by ChatGPT

3.1.4. Other Before-class Preparation

Additionally, during lesson preparation, teachers can utilise the software to generate corresponding course outlines, establish specific learning objectives and teaching principles, develop post-class learning plans, design classroom interactive activities, structure in-class Q&A sessions, group discussions, and activities, create lecture notes, design whiteboard layouts, and establish grading criteria. For instance, creating a grading rubric for university academic English oral presentations (see Figure 6) (Skrabut, 2023).

ChatGPT
Developing a scoring criteria for presentations in academic English at the university level involves several key dimensions. Each dimension should assess specific aspects of the students' presentation skills. Below is a proposed set of criteria with each dimension:

Scoring Criteria for Academic Presentations

- 1. Content (25 Points)**
 - **Accuracy and Relevance (10 points):** Assess how accurately and relevantly the content addresses the topic.
 - **Depth and Complexity (10 points):** Evaluate the depth of analysis and complexity of the ideas presented.
 - **Organization (5 points):** Look at the logical flow and structure of the presentation (introduction, development, conclusion).
- 2. Language Proficiency (25 Points)**
 - **Grammar and Syntax (10 points):** Consider the accuracy of grammar and sentence structure.
 - **Vocabulary (10 points):** Assess the appropriateness and variety of academic vocabulary used.
 - **Pronunciation and Clarity (5 points):** Evaluate clarity of speech and correct pronunciation.
- 3. Delivery (25 Points)**
 - **Confidence and Poise (10 points):** Observe the level of confidence and poise during the presentation.
 - **Eye Contact and Body Language (10 points):** Consider effective use of eye contact and body language.
 - **Voice Modulation (5 points):** Assess the use of voice modulation to maintain audience interest.

Figure 6. Parts of the grading rubric generated by ChatGPT

3.2. During Instruction

3.2.1. ChatGPT as a Speaking Practice Partner

In terms of English-speaking practice, students can first interact with ChatGPT to understand relevant exam backgrounds, content, and techniques. For instance, in IELTS speaking or academic speaking classes, using a prompt such as "I am practising Part 1 of the IELTS speaking test. Could you provide me with some tips and techniques?" can elicit corresponding feedback, swiftly aiding students in understanding the exam framework. The prompt should include the exam name, specific exam section, and specific requirements (see Figure 7). If learners want to realise voice-based communication with ChatGPT, a Voice Control plugin can be added to the website. Alternatively, a ChatGPT-based chatbot, 'Call Annie' (Figure 8), can also be adopted in speaking activities. The human-like appearance of the chatbot and its coherent, multi-turn question-and-answer format can mitigate students' feelings of intimidation, making them more willing to engage in English communication (Jeon et al., 2023; Wan & Moorhouse, 2024).

You
I am practising for Part 1 of IELTS Speaking, could you please give me some preparation advice and exam tips.

ChatGPT
Certainly! Preparing for Part 1 of the IELTS Speaking test is crucial as it sets the tone for the rest of the exam. Here's some advice and tips to help you prepare:

Preparation Advice:

- Familiarize Yourself with Common Topics:** Part 1 typically involves questions about yourself and everyday life (e.g., your home, family, work, studies, interests). Practice speaking about these topics.
- Expand Your Vocabulary:** Work on enriching your vocabulary around everyday topics. Using a variety of words and phrases will make your answers more interesting and demonstrate your language skills.
- Practice Speaking Out Loud:** Regularly practicing speaking in English can improve your fluency and confidence. Speak about different topics, record yourself, and listen to identify areas for improvement.

Figure 7. Advice on IELTS speaking Part 1



Figure 8. Call Annie

As for speaking performance feedback, ChatGPT can provide relatively objective evaluations for students based on the specific scoring criteria, helping students better understand their shortcomings in speaking. Furthermore, the suggestions and guidance offered by ChatGPT can assist students in gradually improving their answers to meet high-scoring standards, thereby enhancing their speaking proficiency and self-directed learning ability.

3.2.2. Class Assistance Tool

Teachers need teaching assistants in large-scale classrooms to facilitate teaching and achieve more comprehensive supervision and feedback. ChatGPT can serve as a platform for real-time human-computer interaction, answering students' questions at any time, catering to each student, and increasing the interactivity and fun of the classroom. Taking academic English writing classes as an example, teachers can use the following suggestions to enhance classroom interaction:

1. Creating academic writing topics: ChatGPT can generate relevant academic topics and write an

introduction, allowing students to continue writing based on it.

2. Providing academic writing samples: After completing regular class content, teachers can use ChatGPT to generate corresponding writing samples for students as references. Subsequently, students can check and propose areas for improvement while exercising their critical thinking skills.
3. Brainstorming vocabulary: Academic words are often complex and challenging to understand. Moreover, paraphrasing and brainstorming synonyms are essential when referencing literature, which requires a greater comprehension of academic words. ChatGPT can help students accumulate vocabulary and achieve efficient paraphrasing.

3.2.3. ChatGPT as a Participant

When students are unable to answer questions posed by their teacher, the instructor can demonstrate how to seek answers using ChatGPT. It is essential for teachers to guide students in critically assessing the accuracy and credibility of the information provided, as the responses from ChatGPT may not always be precise. Therefore, teachers can appropriately evaluate, analyse, or integrate AI-generated content with students' existing knowledge in the classroom to enhance understanding. This approach helps students recognise the limitations of artificial intelligence, reducing fear and concern about it. Teachers should also recognise the importance of empathy in teacher-student interactions, as ChatGPT cannot provide the same level of human care and emotional connection. Integrating AI-assisted guidance with teacher-student interaction gives students a broader perspective in exploring knowledge and emotional value and nurtures critical thinking skills.

On the other hand, Zou et al. (2023) discovered that students achieve better learning outcomes when interacting with peers through social networks while studying in an AI-powered environment. To further enhance students' learning effectiveness and strengthen teacher-student interaction, teachers can utilise social media platforms such as WeChat, Facebook, and WhatsApp to establish communication communities or groups. This allows more entry points for students to share tips and experiences about using ChatGPT, thereby promoting effective and efficient AI-assisted language learning.

3.3. After Class

3.3.1. Assisting with Writing Corrections

ChatGPT has significant advantages in helping provide English writing feedback. Teachers can formulate precise writing tasks for students and clarify writing topics, word limits, format requirements, etc. For example, students are required to write an argumentative essay about pollution, with literature citations in APA 7th format; or write a letter to the principal expressing dissatisfaction with cafeteria services; or write an English short story about university life. After students complete the first draft according to the task requirements, teachers can guide students in entering the written text into ChatGPT to obtain modification suggestions. Students can polish and

revise articles by interacting with ChatGPT. For example, a prompt such as "You are a college English teacher. Please help me revise the English paper, mainly to find grammatical errors and inappropriate use of English words, and give revision suggestions." can be used to revise the English writing (See Figure 9).

ChatGPT
Your paper excerpt is well-structured with a clear focus. Here are some suggested revisions to enhance clarity and correctness:

- Original:** Jun (2020) mentioned that most Chinese students at international high schools are tasked with delivering oral presentations in both Chinese and English and their performance has an impact on their academic achievement, particularly for the students planning to attend overseas studies later on.
Revision: Jun (2020) noted that most Chinese students in international high schools are required to deliver oral presentations in both Chinese and English. These presentations significantly affect their academic achievement, especially for those planning to pursue overseas studies.
Reason: The revision eliminates redundancy ("tasked with" to "required to") and clarifies the relationship between presentations and academic achievement.
- Original:** However, according to the pre-course needs analysis and survey, most of the target students are from regular Chinese public high schools and they barely encounter presentations in English classes that are extremely limited.
Revision: However, the pre-course needs analysis and survey reveal that most of the target students, coming from regular Chinese public high schools, seldom engage in English presentations, which are scarce in their curriculum.
Reason: "Barely encounter presentations" is clearer as "seldom engage in English presentations." Also, "extremely limited" is rephrased for better flow.

Figure 9. Written feedback generated by ChatGPT

Furthermore, teachers can utilise ChatGPT to generate an initial sample essay for specific writing tasks. For instance, teachers can request ChatGPT to "write a research paper discussing the impact of artificial intelligence on the language education industry, including its potential benefits and drawbacks, as well as current usage." Referring to various information and suggestions provided by ChatGPT during the writing process can significantly reduce teachers' workload and further enhance work efficiency.

3.3.2. Designing Exam Questions with ChatGPT

It is a cumbersome and tedious task for teachers to design exam questions before the end of one semester. Utilising ChatGPT for question design on specific content can be an effective approach. For instance, by employing a prompt like "You are now a professor of English major in China. This semester, you taught linguistics, covering phonology, semantics, corpora, and word formation. Please design ten multiple-choice questions in English based on these main topics and provide the answers." (see Figure 10).

ChatGPT
Certainly! Here are ten multiple-choice questions based on the topics of phonology, semantics, corpora, and word formation, suitable for a linguistics course:

Phonology

- Which of the following best defines 'phoneme'?
a) A physical sound of speech.
b) The smallest unit of sound that can change meaning.
c) A category of pitch.
d) A type of morpheme.
Answer: b) The smallest unit of sound that can change meaning.
- In phonology, what is 'assimilation'?
a) When a sound becomes more like a neighboring sound.
b) The removal of a sound from a word.
c) The addition of a sound to the beginning of a word.
d) When a vowel sound changes to a consonant sound.
Answer: a) When a sound becomes more like a neighboring sound.

Semantics

- What does 'polysemy' refer to in semantics?
a) A word that has multiple meanings.
b) A word that sounds the same as another but has a different meaning.
c) The study of word order.
d) Words that have the same spelling.
Answer: a) A word that has multiple meanings.

Figure 10. Multiple-choice questions designed by ChatGPT

In addition to the above, various types of questions can also be designed based on generated articles or corresponding texts. For example, prompts such as "Please create ten multiple-choice questions with five options each based on the article above, and provide the answers." or "Please draft five True or False questions from the generated article, including the answers and their respective locations in the article." This allows teachers to efficiently create a diverse range of questions tailored to their specific teaching needs.

3.4. Academic Research Assistance Tool

ChatGPT can be an invaluable tool for research assistance within higher education settings, providing extensive support to faculty and students. Initially, ChatGPT can assist students in identifying potential research topics, discern research gaps, and supply foundational knowledge in pertinent fields. Furthermore, through engagement with ChatGPT, students can acquire recommendations and direction for generating comprehensive keyword lists, facilitating literature searches and comprehension of analogous research domains. Additionally, ChatGPT aids in formulating research questions, crafting research proposals and offers counsel on question structuring and pertinent literature (refer to Figure 11).

Moreover, ChatGPT can advise on suitable citation formats and strategies for literature searches in creating bibliographies and research outlines, thereby supporting students in productive academic writing. Students may also depend on ChatGPT to identify reputable information sources and guidance on databases, academic search engines, and other resources. In instances where students must synthesise and organise collected information, ChatGPT can aid in simplifying this data, simplifying its integration into their research projects. In terms of EFL

students, ChatGPT can propose edits and writing suggestions, encompassing aspects such as grammar, expression, and logical coherence, thus creating more comprehensible and error-free academic content.

In conclusion, ChatGPT offers comprehensive research assistance, significantly bolstering the efficacy of teachers, students, and researchers. Nevertheless, it is imperative to acknowledge that while ChatGPT serves as a valuable research adjunct, meticulous verification of the provided information's accuracy is essential. It is vital for users to corroborate ChatGPT-sourced data with other resources. Instances have been reported where literature references suggested by ChatGPT were non-existent or inaccurate (Cai et al., 2023). Consequently, students should diligently review information acquired from ChatGPT and integrate it with other trustworthy sources, ensuring the validity and reliability of their research outputs.

ChatGPT
Your research paper on the potential of AI to improve the speaking skills of Chinese English learners is a fascinating and timely topic. Here are some suggestions to help shape your research program:

1. **Define the Research Scope:** Clearly outline what aspects of AI and speaking skills you'll focus on. Will you look at speech recognition, AI tutors, conversational agents, pronunciation correction, or a combination of these?
2. **Literature Review:** Conduct a thorough literature review to understand the current state of research in this field. Focus on studies related to AI in language learning, its efficacy, and any specific research involving Chinese English learners.
3. **Research Questions:** Formulate specific research questions. For example, "How does AI technology assist in improving the pronunciation of Chinese English learners?" or "What is the effectiveness of AI-driven language learning apps in enhancing the conversational skills of Chinese students?"
4. **Methodology:**
 - **Participants:** Define your sample group. Will you focus on a specific age group, proficiency level, or demographic?
 - **Tools and Resources:** Decide on the AI tools or software you will use. Consider popular language learning apps that employ AI, like Duolingo, Babbel, or custom AI solutions.
 - **Data Collection:** Plan how you will collect data. Will you use pre-and post-tests, surveys, interviews, or observational studies?
 - **Ethical Considerations:** Ensure the privacy and consent of participants, especially if recording speech or personal data.

Figure 11. Suggestions on research proposal generated by ChatGPT

4. Conclusion

As generative artificial intelligence (GAI) evolves, it is imperative for EFL teachers to assess and engage with GAI from a diverse array of perspectives. Using the deployment of ChatGPT as an exemplar, this paper offers specific guidelines for educators. GAI's robust natural language processing capabilities can provide EFL teachers with customised materials and assistance, facilitating teaching initiatives and reducing workload. Incorporating GAI in classrooms stimulates students' enthusiasm for learning and provides them with a multi-dimensional perspective on problem-solving. However, current iterations of GAI present several challenges, such as the generation of false information and users' over-reliance on these systems (Cai et al., 2023; Kasneci et al., 2023). Educators should actively participate and intervene in the effective implementation of GAI, ensuring that the use of technology aligns with students' learning objectives,

thereby achieving a more harmonious human-computer interaction. The teacher's role is pivotal in harmonising the coexistence of teaching, learning, and GAI. With the help of GAI technology, teachers could deeply integrate multimodal GAI technologies into the classroom, enriching teaching and learning experiences. Moreover, additional attention and emotional care should be attached to students, fostering the advancement of an ecological AI-assisted language learning environment.

Chenghao (Ian) Wang is a full-time PhD student at the Department of Applied Linguistics, Xi'an Jiaotong-Liverpool University. His research interests include computer-assisted language learning (CALL), AI-CALL, AIGC, and VR-enhanced language learning.
Email: chenghao.wang21@student.xjtlu.edu.cn

Yuqing Wang is a PhD student at the Department of Applied Linguistics, Xi'an Jiaotong-Liverpool University. Her research interest lies in emotion study in Second Language Acquisition (SLA). She is particularly interested in foreign language enjoyment, anxiety, and boredom.
Email: yuqing.wang2302@student.xjtlu.edu.cn

Bin Zou (Corresponding Author) received his PhD degree in TESOL and Computer Technology from the University of Bristol, UK. He is a Senior Associate Professor and PhD supervisor at the Department of Applied Linguistics, Xi'an Jiaotong-Liverpool University. His research interests include Computer-Assisted Language Learning (CALL), AI, EAP, and ELT. He is the Founding Editor and Co-Editor-in-Chief of two international journals: the International Journal of Computer-Assisted Language Learning and Teaching and the International Journal of EAP: Research and Practice.
Email: bin.zou@xjtlu.edu.cn

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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